Noel and Pat Holmgren

VOLUME 22 (1913) PART 5

NORTH AMERICAN FLORA

ROSACEAE (pars)

PER AXEL RYDBERG

Reprinted for
THE NEW YORK BOTANICAL GARDEN
by
Stechert-Hafner Service Agency, Inc.
1963

North American Flora was planned "to present in one work descriptions of all plants growing, independent of cultivation, in North America, here taken to include Greenland, Central America, the Republic of Panama, and the West Indies, except Trinidad, Tobago, and Curacao and other islands off the north coast of Venezuela. . . ."

The families of plants were distributed over 24 planned volumes, of which several were started in 1905 and succeeding years. Parts appeared at irregular intervals, written by various specialists. Because of the vast range to be covered (parts of which are even yet imperfectly known to botanists) it proved impossible to complete most volumes. In 1954 the original plan was abandoned and a second series was begun, to consist of parts treating plant groups in North America in no prescribed sequence.

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35. POTERIUM L. Sp. Pl. 994. 1753.

Pimpinella (Tourn.) Adans. Fam. Pl. 2: 293. 1763.

Leafy perennials with rootstocks. Leaves odd-pinnate, with adnate stipules and toothed leaflets. Flowers polygamo-monoecious, in dense spikes. Hypanthium urn-shaped, contracted at the mouth, 4-angled. Sepals 4, petaloid, deciduous, concave. Petals none. Stamens in the staminate flowers numerous, with filiform exserted and declined filaments, in the perfect flowers fewer. Pistils 2; styles terminal; stigmas many-cleft and brush-like; ovules solitary, suspended. Achenes dry, enclosed in the indurate 4-angled and rugose or verrucose woody hypanthium.

Type species, *Poterium Sanguisorba* L.

1. Poterium Sanguisorba L. Sp. Pl. 994. 1753.

Sanguisorba minor Scop. Fl. Carn. ed. 2. 1: 110. 1772.
Poterium minus S. F. Gray, Nat. Arr. Brit. Pl. 2: 575. 1821.
Sanguisorba Sanguisorba Britton, Mem. Torrey Club 5: 189. 1894.

A glabrous or pubescent perennial, with a rootstock; stem branched, 2–5 dm. high, leafy, glabrous, or villous below; leaves odd-pinnate; stipules of the basal leaves entire, those of the stem-leaves lunate, coarsely toothed; leaflets 7–9, short-petioluled or subsessile, oval to orbicular, coarsely toothed with triangular teeth, 1–2 cm. long; spikes nearly globose, 10–12 mm. in diameter; lower flowers staminate, the upper perfect or pistillate; bracts and bractlets ovate green, ciliate; sepals oval, acute or apiculate, greenish within, purple-tinged without, 3.5–4 mm. long; stamens in the staminate flowers numerous, with filiform declined filaments, but in the perfect flowers less in number; pistils 2; fruiting hypanthium ovoid, 4 mm. long, 4-angled, with thick ridges, and strongly alveolate-favose on the faces.

TYPE LOCALITY: Southern Europe.
DISTRIBUTION: Europe and Asia; naturalized occasionally from Maine and Ontario to the District of Columbia.
ILLUSTRATIONS: Engl. Bot. *pl. 860;* Baxter, Brit. Bot. *pl. 438;* Fl. Dan. *pl. 1939;* Hayne, Arzn. Gew. 8: *pl. 23;* A. Dietr. Fl. Boruss. *pl. 812;* Thomé, Fl. Deuts. *pl. 412;* Fl. Deuts. ed. 5. *pl. 2549;* Britt. & Brown, Ill. Fl. *f. 1963;* ed. 2. *f. 2266.*

36. ACAENA Mutis; L. Mant. 145. 1771.

Fruticose or suffruticose plants, or herbs with more or less woody caudices. Leaves odd-pinnate, with stipules more or less adnate to the petioles. Inflorescence spicate or racemose, usually with the lower flowers remote. Hypanthium ellipsoid, covered all over with barbed prickles, contracted above and usually produced into a short tube. Calyx 3–5-cleft, usually 4-cleft. Corolla wanting. Stamens 3–5, inserted in the mouth of the hypanthium. Pistil usually solitary; style terminal, usually short; stigma many-cleft. Achenes wholly enclosed in the echinate hypanthium. Seeds pendent; radicle superior.

Type species, *Acaena elongata* L.

Leaflets merely toothed; spikes or racemes lax.	
Upper leaflets 15–20 mm. long, the lower gradually reduced.	1. *A. agrimonioides.*
Upper leaflets 8–15 mm. long, the lower scarcely smaller.	2. *A. elongata.*
Leaflets deeply cleft; spikes dense at least above.	3. *A. californica.*

1. Acaena agrimonioides H.B.K. Nov. Gen. & Sp. 6: 231. 1823.

Suffruticose (?) perennial; stems with dark-purple glabrous bark; leaves with 9–13 leaflets; stipules linear-lanceolate, adnate to the petioles, glabrous; leaflets sessile, the terminal one petioluled, oblong, acute at both ends, coarsely serrate, glabrous, pubescent on the lower surface when young, the pubescence usually remaining along the midrib, 15–20 mm. long, about 6 mm. wide; lower leaflets gradually becoming smaller; racemes axillary, lax, in fruit often 2–3 dm. long; flowers short-pedicelled, the lower far remote, 3-bracted; hypanthium ellipsoid, echinate; calyx 3–4-cleft; lobes ovate, concave, glabrous; stamens 3; style short, slightly exserted; stigma many-cleft; fruit drooping, ellipsoid, pubescent, 8 mm. long, covered all over with spines, 3-barbed at the apex.

TYPE LOCALITY: Cold place near Tianguillo, Mexico.
DISTRIBUTION: Known only from the type locality.

2. **Acaena elongata** L. Mant. 200. 1771.

Ancistrum elongatum Poir. in Lam. Encyc. Suppl. **1**: 345. 1810.
Acaena elongata lappacea Kuntze, Rev. Gen. 213. 1891.
Acaena elongata gracilis Bitter, Bibl. Bot. **17**[74]: 30. 1910.

A branched under-shrub with brown or purple, at last flaky bark; leaves with 9–19 leaflets; stipules linear-lanceolate, adnate to the petioles, ciliate; leaflets oval or elliptic, acute at both ends, 8–15 mm. long, sharply serrate, with obliquely-ovate teeth directed forward, somewhat leathery, glabrous and shining above, paler and silky-strigose along the veins beneath; racemes axillary, lax, in fruit 2–3 dm. long; peduncles sparingly pubescent; flowers subsessile, 3-bracteate; hypanthium ellipsoid, verrucose-echinate, slightly villous when young; calyx 4-cleft, its lobes greenish, ovate, concave, fully 1 mm. long, spreading; stamens 3–4; filaments slightly shorter than the calyx-lobes; anthers dark-purple, didymous, opening longitudinally; style short; stigma many-cleft with short lobes; fruit short-pedicelled, nodding and ellipsoid, 6–8.5 mm. long, with numerous spines, in age glabrous or nearly so; spines brown or wine-colored, 2–3 mm. long, usually with 3 barbs at the apex.

TYPE LOCALITY: Mexico.
DISTRIBUTION: Mountains, from Mexico to Colombia.
ILLUSTRATION: Bibl. Bot. **17**[74]: *f. 2.*

3. **Acaena californica** Bitter, Bibl. Bot. **17**[74]: 116.* 1910.

Acaena pinnatifida H. & A. Bot. Beech. Voy. 339. 1838. Not *A. pinnatifida* R. & P. 1798.
Acaena trifida (Torr. Pacif. R. R. Rep. **4**: 84; hyponym. 1857.) Brewer & Wats. Bot. Calif. **1**: 186. 1876. Not *A. trifida* R. & P. 1798.

Perennial, with a woody caudex; stems 1–4 dm. high, sparingly villous, simple; basal leaves crowded, with 11–17 leaflets, glabrous or slightly ciliate and green above, grayish- and appressed-silky beneath; leaflets 5–10 mm. long, obovate in outline, pinnatifid, with 3–7 linear or linear-lanceolate, callous-tipped divisions; stem-leaves similar but smaller and the divisions of the leaflets usually only 3; spike globose to oblong-cylindric, usually with some scattered solitary flowers or small clusters below; flowers greenish; calyx-lobes linear-oblong, about 3 mm. long, spreading; filaments long-exserted, purple, as well as the didymous anthers; style about 1 mm. long; stigma many-cleft; fruit ovate, about 4 mm. long, 3–4-angled, with 2–4 stout prickles on the angles and smaller ones in the intervals.

TYPE LOCALITY: California.
DISTRIBUTION: Central California, near the coast.
ILLUSTRATION: Bot. Mex. Bound. Surv. *pl. 19.*

EXCLUDED SPECIES

Acaena lappacea R. & P. Fl. Per. **1**: 66. 1798. Hemsley also enumerates this as a Mexican species. One specimen cited by him, *viz., Bourgeau 209*, belongs to *A. elongata*. The other, *Coulter 74*, I have not seen, but it probably also belongs to the same species. *V. elongata lappacea* "forma alpestris" Kuntze, Rev. Gen. 213, is a depauperate mountain form of it. Bitter reduces *A. lappacea* R. &. P. to a synonym of *A. elongata*, but I think it is rather the same as Bitter's own *A. torilicarpa*.

Acaena laevigata Ait. Hort. Kew. ed. 2. **1**: 68 (1810), is accredited to Mexico by Hemsley. He cites Vahl, Enum. **1**: 297, as the place of publication; but Vahl called the species *A. adscendens*. Hemsley refers to it two specimens of Schiede and Ehrenberg, which had been referred to *A. elongata* by Schlechtendal, and evidently rightly so. *A. laevigata* is known only from Patagonia and the Falkland Islands. Lagasca gives this species as inhabiting "N. H."

Acaena sericea Jacq. f. Eclog. Pl. **1**: 81. *pl. 55* (1811–16), is given in the Index Kewensis as from Mexico, but probably erroneously so. The species was described from garden material of unknown origin. *Ancistrum Acaena* Lag. Gen. & Sp. Nov. 7 (1816), is supposed to be the same. The type locality of this species was given as "N. H." [Nova Hispania], which usually meant Mexico, but sometimes was used for most of Spanish America; the plant came probably from South America. *A. sericea* is described as having a dense almost capitate inflorescence, and oval, coarsely toothed, silvery-pubescent leaves.

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* Bitter described also five varieties, viz.: *remotiflorens, subglabriscapa, polyarthrotricha, brevifoliolata,* and *grandis,* which apparently are of no taxonomic value.

Acaena tridactyla Presl, Epim. Bot. 201. 1851. I have been inclined to regard this as the same as *A. californica* Bitter, notwithstanding the fact that the leaflets were described as 3-fid, which is rarely the case in *A. californica*. Bitter states, however (Bibl. Bot. **17**[74]: 294), that he has seen the type of Presl's species and that it is *A. trifida* R. & P., which is not known outside of Chile.

37. AGRIMONIA L. Sp. Pl. 448. 1753.

Perennial herbs with rootstocks. Leaves odd-pinnate, with smaller leaflets interposed between the larger ones. Flowers in narrow racemes, regular, perfect. Hypanthium hemispheric to obconic, constricted at the throat and enclosing the achene in fruit, usually 10-grooved longitudinally, above with a ring of hooked bristles. Sepals 5, after anthesis more or less connivent, forming a nipple-shaped beak on the fruit. Petals 5, small, yellow, clawless. Stamens 5–15; filaments slender. Pistils 2; styles terminal; stigmas 2-lobed; ovules suspended.

Type species, *Agrimonia Eupatoria* L.

Fruiting hypanthium with several series of bristles, the lower bristles reflexed; sepals acuminate with tips incurved in fruit.
- Hypanthium as broad as long; plant sparingly hairy. — 1. *A. gryposepala.*
- Hypanthium longer than broad; plant densely hirsute. — 2. *A. macrocarpa.*

Fruiting hypanthium with 2–4 series of bristles, the latter erect, ascending or merely spreading; sepals acute.
- Leaflets more than 3 cm. long, serrate or crenate with many teeth which are directed forward.
  - Racemes and leaves glabrous or nearly so, glandular-granuliferous; root tuberous-thickened. — 3. *A. rostellata.*
  - Racemes and lower surface of the leaves decidedly hairy.
    - Roots tuberous-thickened (except in *A. Eupatoria*); leaflets not glandular-granuliferous or only slightly so, velvety-pubescent beneath.
      - Fruiting hypanthium broadly obconic, nearly as broad as long or broader, shorter than the sepals, with a prominent rim; leaflets 3–5, rarely 7; long hairs of the stem divaricate.
        - Leaves usually crowded on the lower part of the stem; leaflets 3 or 5 with the lower pair much reduced, rounded at the apex; fruiting hypanthium as broad as long. — 4. *A. microcarpa.*
        - Leaves scattered on the stem; leaflets 5–7, acute at the apex; fruiting hypanthium usually broader than long. — 5. *A. platycarpa.*
      - Fruiting hypanthium campanulate or turbinate, longer than broad; rim less conspicuous; leaflets of the lower leaves 7–13; long hairs of the stem ascending or erect.
        - Hypanthium 2.5–3 mm. long, with rather shallow grooves.
          - Leaflets 5–7, rarely 9, obovate or oval, or rarely elliptic; fruiting hypanthium with an obsolete rim and erect or ascending bristles. — 6. *A. pubescens.*
          - Leaflets 7–13, lanceolate or narrowly elliptic; fruiting hypanthium with a more or less developed rim, the outer bristles spreading. — 7. *A. Bicknellii.*
        - Hypanthium about 5 mm. long, with deep grooves and prominent rim; leaflets 7–13, lance-elliptic to elliptic. — 8. *A. Eupatoria.*
    - Roots not tuberous; leaflets conspicuously glandular-granuliferous beneath.
      - Leaflets 5–9, broadly lanceolate, oblanceolate, or elliptic, with rather few teeth.
        - Fruiting hypanthium 5 mm. long, with erect or connivent bristles. — 9. *A. striata.*
        - Fruiting hypanthium broadly obconic, 2.5–3 mm. long, the bristles ascending. — 10. *A. Pringlei.*
      - Leaflets 9–23, narrowly lanceolate, with numerous teeth; fruiting hypanthium 2.5–3 mm. long, the outer bristles spreading. — 11. *A. parviflora.*

Leaflets 1–2 cm., rarely 3 cm. long, with few salient or even slightly reflexed teeth. — 12. *A. incisa.*

1. Agrimonia gryposepala Wallr. Beitr. Bot. 1: 49. 1842.

Agrimonia Eupatoria Pursh, Fl. Am. Sept. 335. 1814. Not *A. Eupatoria* L. 1753.
Agrimonia Eupatoria hirsuta Muhl. (Cat. 47; hyponym. 1813); W. Barton, Fl. Phila. Prodr. 53. 1815.
Agrimonia hirsuta Bickn. Bull. Torrey Club **23**: 509. 1896. Not *A. hirsuta* Bong. 1842.

Perennial, with a short thick rootstock and fibrous roots; stem 3–18 dm. high, usually branched above, often zigzag, sparingly hirsute with spreading hairs and glandular-granuliferous especially on the upper part, leafy; leaves 1–3 dm. long; petioles and rachis hirsute stipules large, often 2 cm. broad, semi-cordate, coarsely toothed with ovate, abruptly acuminate teeth; principal leaflets 5–9, oval or obovate or those of the upper leaves oblanceolate or lance-

elliptic, thin, coarsely serrate with ovate teeth, rounded to acute at the base, acute at the apex, glabrous or sparingly strigose above, glandular-granuliferous beneath and sparingly hirsute on the veins, 4–12 cm. long, the lateral sessile, the terminal short-petioluled; interposed leaflets often 3 pairs in the distal intervals, the middle pair larger, sometimes 2 cm. long; branches ascending-spreading; racemes 2–4 dm. long, glandular-granuliferous and with scattered hairs; pedicels ascending, 2–10 mm. long; bracts usually 3-cleft, with lanceolate, acuminate lobes, ciliate; sepals about 2 mm. long, prominently 3-nerved, ovate, acuminate and with incurved tips in fruit; petals obovate, 2.5–3 mm. long, bright-yellow; fruiting hypanthium when mature 4–5 mm. long and about as broad, glandular-granuliferous, abruptly contracted at the base, often slightly strigose at the base, strongly grooved with rounded ridges and prominently expanded at the margin; bristles in numerous series, the inner 3 mm. long, erect, exceeding the calyx, the outer short and reflexed.

TYPE LOCALITY: Pennsylvania.
DISTRIBUTION: Border of woods and thickets, from Nova Scotia to North Carolina, Nebraska, and North Dakota; apparently also California, New Mexico, and Mexico.
ILLUSTRATIONS: Wallr. Beitr. Bot. **1**: *pl. 1, f. 8;* Britt. & Brown, Ill. Fl. *f. 1957;* ed. 2. *f. 2267;* Bull. Torrey Club **23**: *pl. 282, f. 1.*

2. **Agrimonia macrocarpa** (Focke) Rydberg, sp. nov.

Agrimonia parviflora macrocarpa Focke; Donn. Smith, Bot. Gaz. **16**: 3. 1891.

Perennial; stem 5–10 dm. high, branched above, hirsute with long brownish hairs, glandular-granuliferous above, leafy; leaves 2–3 dm. long; petioles and rachis hirsute; stipules broadly and obliquely ovate or semi-cordate, 1–2 cm. long, coarsely toothed, with ovate acute teeth; principal leaflets 7–9, oval or elliptic-lanceolate, 3–6 cm. long, thin, acute at both ends, rather densely hirsute on both sides, glandular-granuliferous beneath, the terminal one short-petioled; interposed leaflets 1–3 pairs in each interval, 3–10 mm. long; racemes 1–2 dm. long, glandular-granuliferous; pedicels ascending, 2–5 mm. long; bracts 3-cleft with subulate lobes; sepals lanceolate, acuminate, 3-nerved, incurved in fruit, 2–2.5 mm. long; petals obovate, 3–3.5 mm. long, bright-yellow; fruiting hypanthium when mature including the sepals 5–6 mm. long, granuliferous, rather abruptly contracted at the base, grooved, round-ridged, slightly expanded at the margin; bristles in numerous series, the inner 3 mm. long, erect, the outer shorter and reflexed.

TYPE LOCALITY: Coban, Alta Verapaz, Guatemala.
DISTRIBUTION: Guatemala.

3. **Agrimonia rostellata** Wallr. Beitr. Bot. **1**: 42. 1842.

Agrimonia Eupatoria glabra Muhl. (Cat. 47; hyponym. 1813); W. Barton, Fl. Phila. Prodr. 53. 1815.
Agrimonia parviflora Seringe, in DC. Prodr. **2**: 588. 1825. Not *A. parviflora* Soland. 1789.
Agrimonia Eupatoria parviflora Hook. Fl. Bor. Am. **1**: 197. 1832.
Agrimonia americana Lucae; Wallr. Beitr. Bot. **1**: 43, as synonym. 1842.
Agrimonia striata Bickn. Bull. Torrey Club **23**: 512. 1896. Not *A. striata* Michx. 1803.

Perennial, with a short rootstock and more or less tuberous-thickened roots; stem slender, 2–10 dm. high, branched above, glandular-granuliferous and sparingly hirsute with slender spreading hairs; stipules lanceolate to semi-cordate, usually small, seldom 1 cm. wide, deeply incised or the lower entire; petiole and the rachis of the leaves slender, glabrous or with scattered hairs; principal leaflets 3–9, usually obovate or oval, 2–10 cm. long, subsessile, thin, glabrous or nearly so, glandular-granuliferous beneath, acute or obtuse at both ends, serrate with broadly ovate teeth; interposed leaflets usually a single pair in each of the intervals or lacking; inflorescence usually branched; peduncles slender, merely glandular-granuliferous; racemes short, loosely flowered; pedicels 2–5 mm. long, ascending; bracts minute, ciliate; sepals lanceolate-ovate, acute, 1.5 mm. long; petals elliptic, 2–3 mm. long, pale-yellow; fruiting hypanthium 2 mm. long, hemispheric, glandular-granuliferous, with low and rounded ribs and shallow grooves, almost without a rim; bristles slender, 1–1.5 mm. long, in about 3 series, erect or ascending, only the lowest somewhat spreading.

TYPE LOCALITY: Pennsylvania.
DISTRIBUTION: Wooded hillsides, from Connecticut to Georgia, Alabama, and Kansas.
ILLUSTRATIONS: Britt. & Brown, Ill. Fl. *f. 1958;* ed. 2. *f. 2268;* Bull. Torrey Club **23**: *pl. 283, f. 6.*

4. **Agrimonia microcarpa** Wallr. Beitr. Bot. 1: 39. 1842.

Agrimonia pumila Muhl. (Cat. 47; hyponym. 1813); Bickn. Bull. Torrey Club **23**: 514. 1896.

Perennial, with a short rootstock and tuberous-thickened roots; stem usually simple, 3–6 dm. high, finely and densely pubescent and also more or less hirsute with spreading hairs, leafy only towards the base; stipules rounded or semi-cordate, less than 1 cm. broad, coarsely toothed with triangular teeth; petiole and rachis of the leaves hirsute and finely pubescent; principal leaflets 3–5, the lower pair smaller, obovate or obovate-cuneate, sessile or nearly so, acute at the base, usually rounded at the apex, crenate or dentate with coarse ovate or triangular teeth, 1–5 cm. long, dark-green and sparingly appressed-hairy or glabrate above, paler and softly pubescent beneath, with longer hairs along the veins, obscurely if at all glandular-granuliferous beneath; racemes lax; peduncles finely soft-puberulent; sepals ovate, 1.5 mm. long, acute, 3-ribbed; petals elliptic, 2–2.5 mm. long, dark-yellow; fruiting hypanthium broadly obconic, 2–2.5 mm. long and about as broad, glandular-granuliferous, rarely with a few hairs on the lower part, gradually contracted into the short stipe, deeply grooved and with rounded ridges, dilated above into a distinct rim; bristles in 2–3 series, ascending.

TYPE LOCALITY: Pennsylvania.
DISTRIBUTION: Pennsylvania and Maryland to Florida and eastern Texas. (According to Wallroth also at Jalapa, Mexico, but the specimen probably belonged to *A. Pringlei*.)
ILLUSTRATIONS: Wallr. Beitr. Bot. **1**: *pl. 1, f. 3;* Bull. Torrey Club **23**: *pl. 283, f. 5;* Britt. & Brown, Ill. Fl. *f. 1959;* ed. 2. *f. 2269.*

5. **Agrimonia platycarpa** Wallr. Beitr. Bot. 1: 38. 1842.

Perennial, with a short rootstock and tuberous-thickened roots; stem erect, slender, 4–7 dm. high, with scattered leaves, finely pubescent and hirsute with scattered spreading hairs; stipules semi-cordate, sharply toothed with lanceolate teeth, the largest 1 cm. wide; petioles and rachis of the leaves hirsute and finely pubescent; principal leaflets 3–5, rarely 7, coarsely toothed with ovate teeth, dark-green and shining, sparingly strigose above, velvety and more gray beneath and with longer hairs on the veins, 1–6 cm. long, the terminal one obovate or oblanceolate, short-stalked, the lateral ones oval or elliptic, acute at both ends, the lowest pair smaller; peduncles simple or somewhat branched, 1–3 dm. long, finely pubescent, not glandular-granuliferous; pedicels short, erect; sepals ovate, acute, 1.5 mm. long; petals light-yellow, obovate, 1.5–2 mm. long; fruiting hypanthium spreading, broadly obconic, about 2 mm. high and 3 mm. wide, with rather low narrow ridges and broad grooves, glabrous or puberulent, not glandular, with a prominent rim; bristles 2–3 mm. long, in 3 series, ascending or the lower spreading.

TYPE LOCALITY: Woods, in the vicinity of Hamburg [South Carolina?].
DISTRIBUTION: North Carolina to Georgia, Alabama; Pennsylvania.
ILLUSTRATION: Wallr. Beitr. Bot. **1**: *pl. 1, f. 5.*

6. **Agrimonia pubescens** Wallr. Beitr. Bot. 1: 45. 1842.

Agrimonia Eupatoria mollis T. & G. Fl. N. Am. **1**: 431. 1840.
Agrimonia parviflora Kinn; Wallr. Beitr. Bot. **1**: 45, as synonym. 1842.
Agrimonia mollis Britton, Bull. Torrey Club **19**: 221. 1892.

Perennial, with a short rootstock and tuberous-thickened roots; stem 3–15 dm. high, usually with ascending branches, finely and densely pubescent with often crisp hairs and also sparingly hirsute with longer ascending hairs; stipules variable, the lower often lanceolate and entire, the upper semi-cordate, sometimes 1 cm. broad, coarsely toothed with ovate or triangular teeth; petiole and rachis of the leaves densely pubescent; principal leaflets 5–7 (rarely 9), dark-green and sparingly hirtellous or glabrate above, densely and velvety pubescent, rarely if at all glandular-granuliferous beneath, coarsely toothed with triangular-ovate teeth, 2–10 cm. long, the terminal one usually short-stalked, obovate, from rounded to acute at the apex, acute at the base, the lateral ones obovate to elliptic or oval, the lowest pair smallest; interposed leaflets usually small, often entire, a single pair in each interval and often in the distal intervals only; peduncles finely and densely pubescent, 1–4 dm. long; racemes lax; bracts narrowly 3-cleft, as well as the bractlets small; pedicels 1–5 mm. long, erect and appressed; sepals 1.5 mm. long, ovate, acute or obtusish, scarcely glandular-granuliferous; petals deep-yellow, obovate, 1.5 mm.

long; fruiting hypanthium turbinate or campanulate, 2.5–3 mm. long, 2–2.5 mm. wide, deeply grooved, glabrous or with scattered hairs, acute at the base; rim small or obsolete; bristles in three series, 1–2 mm. long, erect or ascending.

TYPE LOCALITY: North America.
DISTRIBUTION: Dry open woods, from New York and Ontario to Georgia, Arkansas, Kansas, and Minnesota.
ILLUSTRATIONS: Wallr. Beitr. Bot. 1: *pl. 1, f. 7;* Bull. Torrey Club 23: *pl. 282, f. 3;* Britt. & Brown, Ill. Fl. *f. 1960;* ed. 2. *f. 2270.*

7. **Agrimonia Bicknellii** (Kearney) Rydb.; Bickn. Bull. Torrey Club 38: 450. 1911.

Agrimonia mollis var. Bickn. Bull. Torrey Club **23**: 517. 1896.
Agrimonia mollis Bicknellii Kearney, Bull. Torrey Club **24**: 565. 1897.

Perennial, with a short rootstock and tuberous-thickened roots; stem strict, leafy, with ascending branches above, finely and densely villous-pubescent, almost canescent, and with scattered long ascending hairs; stipules semicordate, cut-toothed with ovate teeth, the largest 1 cm. wide; petioles and rachis of the leaves canescent and with longer ascending hairs; principal leaflets 7–13, dark-green and rather densely hispidulous or in age glabrate above, grayish-velvety beneath, rarely if at all glandular-granuliferous, acute at both ends or obtusish at the apex, 1–8 cm. long, coarsely toothed with broadly ovate teeth, the terminal leaflet rhombic-oblanceolate, sessile or short-stalked and then often lobed at the base, the lateral ones lanceolate or narrowly elliptic, sessile; interposed leaflets small, a single pair in each interval, entire or 3-toothed; peduncles finely canescent, 1–3 dm. long; raceme lax; bracts and bractlets very small, entire or narrowly 3-cleft; pedicels very short and erect; sepals about 1 mm. long, ovate, acute, strongly 3-nerved; petals rather pale-yellow, elliptic, about 2 mm. long; fruiting hypanthium turbinate, acute at the base, strongly ribbed, 3 mm. long, with a more or less developed rim, slightly strigose below; bristles in 3–4 series, the inner 2–3 mm. long, ascending, the outer shorter and spreading.

TYPE LOCALITY: Neighborhood of Wolf Creek, eastern Tennessee.
DISTRIBUTION: Southern Massachusetts to Pennsylvania, Georgia, and Tennessee.
ILLUSTRATION: Bull. Torrey Club **23**: *pl. 282, f. 4.*

8. **Agrimonia Eupatoria** L. Sp. Pl. 448. 1753.

Perennial, with a short rather thick rootstock; stem strict, leafy, branched above, 3–6 dm. high, angled, hirsute with usually spreading hairs; stipules semi-cordate or semi-orbicular, incised, hirsute, 1–2 cm. long; petioles and rachis of the leaves hirsute as well as finely pubescent; principal leaflets 9–13, or on the upper part of the stem 7, elliptic or lance-elliptic, 2–6 cm. long, coarsely serrate, acute at both ends, dark-green and appressed-pubescent above, finely pubescent as well as hirsute beneath, especially on the veins, but not glandular-granuliferous, the terminal one short-petioluled, the lateral ones sessile; interposed leaflets small, often 2 or 3 pairs in each interval, entire or toothed; racemes elongate, 2–3 dm. long; peduncles hirsute; pedicels very short, in fruit recurved; sepals ovate-lanceolate, about 2 mm. long, strongly ribbed; petals golden-yellow, orbicular or oval, 4–6 mm. long; fruiting hypanthium turbinate-campanulate, about 5 mm. long, strongly and deeply grooved, with a distinct rim, hirsute; bristles in about 4 series, the inner 2–2.5 mm. long, ascending, the outer shorter and spreading.

TYPE LOCALITY: Europe.
DISTRIBUTION: Europe and Asia; introduced and sparingly established in Minnesota and Wisconsin.
ILLUSTRATIONS: Fl. Dan. *pl. 588;* Engl. Bot. *pl. 1335;* Woodv. Med. Bot. *pl. 180;* Hayne, Arzn. Gew. **2**: *pl. 19;* Sv. Bot. *pl. 99;* Baxter, Brit. Bot. *pl. 88;* A. Dietr. Fl. Boruss. *pl. 410;* Thomé, Fl. Deuts. *pl. 411.*

9. **Agrimonia striata** Michx. Fl. Bor. Am. **1**: 287. 1803.

Agrimonia Brittoniana Bickn. Bull. Torrey Club **23**: 517. 1896.

Perennial, with a stout root stock and fibrous roots; stem 3–20 dm. high, sometimes 1 cm. thick at the base, hirsute with spreading hairs and glandular-papillose; stipules lanceolate or semi-ovate, laciniate with lanceolate, acuminate teeth; petiole and rachis of the leaves hirsute; principal leaflets 7–13, directed forward, strongly veined, dark-green and more or less hispidulous or scabrous above, paler, copiously glandular-granuliferous and more or less pubescent

beneath, especially on the veins, lanceolate, elliptic, oblanceolate, or rhombic-obovate, acute at the base, acuminate at the apex, sharply serrate with lanceolate mucronulate teeth, 3–10 cm. long; interposed leaflets 1–3 pairs in each interval, often alternately arranged, usually toothed; peduncles finely pubescent with ascending or appressed hairs, 3–5 dm. long; pedicels ascending, 2–5 cm. long; bracts lanceolate, 3-cleft; bractlets ovate, acuminate; sepals 1.5 mm. long, triangular-ovate, strongly 3-ribbed; petals deep-yellow, obovate, 3 mm. long; fruiting hypanthium when mature strongly reflexed, about 5 mm. long, turbinate, 4 mm. thick, strongly ribbed, glandular-granuliferous and in the grooves strigose, with a low thick rim; bristles in 3–4 series, erect or connivent.

TYPE LOCALITY: Canada.

DISTRIBUTION: Roadsides, open woods, and copses, from Nova Scotia to West Virginia, New Mexico, and British Columbia.

ILLUSTRATIONS: Bull. Torrey Club **23**: *pl. 282, f. 2;* Britt. & Brown, Ill. Fl. *f. 1961;* ed. 2. *f. 2271.*

10. **Agrimonia Pringlei** Rydberg, sp. nov.

Perennial, with a short rootstock and fibrous roots; stem about 3 dm. high, more or less hirsute and glandular-granuliferous, leafy below; petiole and rachis of the leaves hirsute; stipules very small, lanceolate, usually toothed; principal leaflets of the lower leaves 7–9, of the upper 3–5, obovate or rhombic-ovate, 1–3.5 cm. long, acute, coarsely serrate with ovate teeth, sparingly hirsute on both sides and conspicuously glandular-granuliferous beneath; interposed leaflets a single pair in each interval, usually very small, entire or 2–3-toothed; racemes lax, 1–2 dm. long; peduncles glandular-granuliferous and very sparingly hirsute; pedicels very short, 1–2 mm. long, strongly ascending; sepals ovate, acute, strongly 3-nerved; petals apparently orange, about 2 mm. long; fruiting hypanthium 2.5–3 mm. long, obconic, glandular-granuliferous, rather strongly ribbed with broad grooves; rim rather obscure; bristles 1.5–2 mm. long, in about 3 series, ascending.

Type collected near Jalapa, State of Vera Cruz, Mexico, 1903, *C. G. Pringle 11876* (Gray Herbarium of Harvard University).

DISTRIBUTION: Vera Cruz.

11. **Agrimonia parviflora** Ait. Hort. Kew. **2**: 130. 1789.

Agrimonia Eupatoria Michx. Fl. Bor. Am. **1**: 287. 1803. Not *A. Eupatoria* L. 1753.
Agrimonia suaveolens Pursh, Fl. Am. Sept. 336. 1814.
Agrimonia serrifolia Wallr. Beitr. Bot. **1**: 40. 1842.
Agrimonia Eupatoria americana Kinn; Wallr. Beitr. Bot. **1**: 40, as synonym. 1842.
Agrimonia polyphylla Urban, Symb. Ant. **7**: 227. 1912.

Perennial, with a stout rootstock and fibrous roots; stem 3–20 dm. high, virgately branched above, stout, often 1 cm. in diameter at the base, densely hirsute, finely pubescent and glandular-granuliferous; stipules broadly rounded-semicordate, strongly ribbed, often 2 cm. wide, incised with lanceolate teeth; petiole and rachis of the leaves coarsely hirsute; principal leaflets 11–23, strongly veined, 1.5–12 cm. long, subsessile, spreading, sharply serrate with lanceolate teeth directed forward, somewhat hispidulous or glabrate above, paler, sparingly pubescent (especially on the veins) and conspicuously glandular-granuliferous beneath, narrowly lanceolate, acuminate, or those of the lower leaves broader and shorter and more incised; interposed leaflets often 3–5 pairs in each interval, of various sizes, usually incised-toothed; peduncles 2–4 dm. long, finely and densely puberulent and glandular-granuliferous; pedicels very short and erect; sepals ovate, acute, 1.5 mm. long; petals elliptic, pale-yellow, 2 mm. long; fruiting hypanthium turbinate, nodding, minutely glandular-granuliferous, acute at the base, 2.5–3 mm. long, with broad and shallow grooves; margin small or obsolete; bristles few, in two series, the outer spreading or reflexed.

TYPE LOCALITY: North America.

DISTRIBUTION: Damp ground, from New York to Florida, Mississippi, and Nebraska; Mexico; Santo Domingo.

ILLUSTRATIONS: Bull. Torrey Club **23**: *pl. 283, f. 7;* Britt. & Brown, Ill. Fl. *f. 1962;* ed. 2. *f. 2272.*

12. **Agrimonia incisa** T. & G. Fl. N. Am. **1**: 431. 1840.

Agrimonia parviflora incisa Wood, Bot. & Fl. 108. 1871.

Perennial, with a short rootstock; stem 3–10 dm. high, simple or somewhat branched with ascending branches, densely and finely canescent and with scattered long hairs, leafy; stipules

lanceolate or semi-ovate, with lanceolate teeth; petiole and rachis of the leaves short-pubescent and with longer, spreading hairs; principal leaflets 9–11, 1–2 cm. long, strongly veined, sessile, obovate, rounded at the apex, thick, acutely toothed with salient or even slightly recurved teeth, dark-green above, more grayish beneath, velvety on both sides and with longer loose hairs, especially on the veins, more or less densely glandular-granuliferous; interposed leaflets small, 3-cleft, a pair in each interval; peduncles 1–6 dm. long, finely canescent and glandular-granuliferous; racemes lax; pedicels short, ascending; sepals ovate, 1.5 mm. long, not strongly 3-nerved; petals elliptic, 2–3 mm. long, deep-yellow; fruiting hypanthium campanulate, 2.5 mm. long, rounded at the base, glandular-granuliferous, with low ridges, and almost without rim; bristles in 3–4 series, ascending or the lower spreading.

TYPE LOCALITY: North Carolina?
DISTRIBUTION: Pine woods, from Florida to North Carolina and Mississippi.
ILLUSTRATIONS: Bull. Torrey Club **23**: *pl. 283, f. 8;* Mem. Bonon. **2**: *pl. 44.*

Tribe 10. **ADENOSTOMATEAE.** Shrubs with fascicled or alternate, rigid, filiform or clavate leaves. Inflorescence paniculate with short spikelike branches. Hypanthium urceolate or obconic, 10-angled, in fruit enclosing the single achene, often with 5 glands in the throat alternate with the sepals. Sepals 5, rounded, mucronate. Petals 5, orbicular, spreading. Stamens 10–15, 2 or 3 opposite each sepal; anthers subglobose. Pistils solitary; ovary obliquely obovoid, covered at the top by a hairy cushion; style lateral, inserted under the edge of the cushion, twice bent; stigma capitate; ovules solitary; pendulous.

38. **ADENOSTOMA** H. & A. Bot. Beech. Voy. 139. 1832.

Characters of the tribe.
Type species, *Adenostoma fasciculatum* H. & A.

Leaves clavate, fascicled; bracts and bractlets narrowly lanceolate, not scarious; stamens usually 15; throat of the hypanthium with fleshy glands.
- Leaves acute, distinctly petioled; branches glabrous or minutely puberulent. 1. *A. fasciculatum.*
- Leaves obtuse or abruptly apiculate, sessile or nearly so; branches pubescent. 2. *A. brevifolium.*

Leaves filiform, scattered; bracts and bractlets broadly lanceolate, scarious-margined; stamens usually 10; throat of the hypanthium without fleshy glands. 3. *A. sparsifolium.*

1. **Adenostoma fasciculatum** H. & A. Bot. Beech. Voy. 139. 1832.

Adenostoma fasciculatum densifolium Eastw. Bull. Torrey Club. **32**: 199. 1905.

A diffusely branched shrub, 0.5–6 m. high; bark of the twigs reddish, glabrous or slightly puberulent, that of the older branches gray and becoming shreddy; leaves fascicled, filiform-clavate, short-petioled, usually somewhat curved, acute, shining, glabrous, 5–10 mm. long, thick, channeled on one side; bracts and bractlets lanceolate, callous-spinose-tipped; hypanthium obconic, 2 mm. long, strongly striately 10-angled; sepals semi-orbicular, mucronate, spreading; petals white, orbicular, scarcely 1.5 mm. long; filaments filiform, about equaling the petals.

TYPE LOCALITY: Bay of Monterey, California.
DISTRIBUTION: Central and southern California and northern Mexico.
ILLUSTRATIONS: H. & A. Bot. Beech. Voy. *pl. 30;* Jour. Hort. Soc. Lond. **6**: *55, f.;* Baillon, Hist. Pl. **1**: *f. 438;* E. & P. Nat. Pfl. **3**: *f. 18 A–D;* C. K. Schneid. Handb. Laubh. **1**: *f. 316 f–o.*

2. **Adenostoma brevifolium** Nuttall, sp. nov.

Adenostoma fasciculatum β T. & G. Fl. N. Am. **1**: 430. 1840.
Adenostoma brevifolium Nutt.; T. & G. Fl. N. Am. **1**: 430, as synonym. 1840.
Adenostoma fasciculatum obtusifolium S. Wats. Bot. Calif. **1**: 184. 1876.
Adenostoma fasciculatum hirsutum C. K. Schneid. Handb. Laubh. **1**: 533. 1905.

Intricately branched shrub, 0.5 m. high; bark of the twigs dark-brown and usually pubescent, that of the older branches dark-gray and shreddy; leaves sessile, clavate, 4–6 mm. long, obtuse or abruptly apiculate, usually very resinous; inflorescence 2–7 cm. long, with short

branches; flowers closely aggregate; hypanthium a little more than 1 mm. long, puberulent and glutinous; sepals semi-orbicular; petals orbicular, nearly 1.5 mm. long; filaments filiform, scarcely equaling the petals.

TYPE LOCALITY: San Diego, California.
DISTRIBUTION: San Diego County, California.

3. **Adenostoma sparsifolium** Torr. in Emory, Notes Mil. Rec. 140. 1848.

A shrub or tree 1–10 m. high; bark of the twigs yellowish-green, glabrous, sparingly resinous-granuliferous, striate, that of the older branches and stems reddish and peeling off; leaves alternate, filiform, 5–10 mm. long, glabrous, granuliferous; panicles loose, 2–7 cm. long, pyramidal; hypanthium turbinate-campanulate, 1 mm. long, puberulent; bracts 10-striate, broadly lanceolate, scarious-margined; sepals rounded-ovate, obtuse, scarious-margined; petals orbicular or round-oval, 1.5 mm. long, white or slightly pinkish; stamens about 10, inserted on the outside of the lobed disk; filaments filiform, much shorter than the petals; style clavate.

TYPE LOCALITY: Warner's Pass, California.
DISTRIBUTION: Southern California and Lower California.
ILLUSTRATION: Bot. Mex. Bound. Surv. *pl. 20*.

Tribe **11. COLEOGYNEAE.** Shrubs with linear-clavate, entire, opposite, crowded leaves, and opposite spinescent branches; stipules minute, persistent with the petioles; leaf-blades deciduous. Flowers solitary, terminating short branches, subtended by 3-fid bracts. Calyx coriaceous, yellowish or brownish; sepals 4, connate at the base, persistent. Corolla wanting. Stamens 30–40; filaments slender, distinct, except at the very base, where they are slightly adnate to a tubular sheath-like prolongation of the disk, which separates the stamens from the pistil. Gynoecium of a single pistil; ovary 1-ovuled, 1-celled; style lateral, filiform, bent and twisted, very villous, exserted, stigmatose on one side; ovules hemitropous. Fruit an achene.

39. **COLEOGYNE** Torr. Pl. Frém. 8. 1853.

Characters of the tribe.
Type species, *Coleogyne ramosissima* Torr.

1. **Coleogyne ramosissima** Torr. Pl. Frém. 8. 1853.

A branched shrub, 0.5–2 m. high, with divergent opposite branches and at first ashy-gray bark, which in age turns black (hence the name "Black Bush"); leaves crowded towards the ends of the branches, clavate, strigose, 5–15 mm. long, flattish above, with 4 grooves and 5 broad rounded ridges beneath (originally but erroneously described as being "marked with five longitudinal ribs on the upper surface, but flattish underneath"); stipules minute and scale-like; bracts structurally like the leaves, but the blade smaller and the stipules much larger; sepals 4, coriaceous, yellowish or brownish, 7–8 mm. long, the outer lanceolate or ovate, acute, the inner ovate or obovate, abruptly short-acuminate or mucronate; anthers cordate, apiculate; sheath between the stamens and the pistil 4–5 mm. long; style very villous, except the terminal exserted portion.

TYPE LOCALITY: Sources of the Mohave and Virgin rivers.
DISTRIBUTION: Desert mesas and foothills, from southern California to Arizona, southern Utah, and southwestern Colorado.
ILLUSTRATIONS: Torr. Pl. Frém. *pl. 4;* C. K. Schneid. Handb. Laubh. 1: *f. 316 p–v*.

Tribe **12. COLURIEAE.** Perennial herbs with rootstocks. Inflorescence racemose, corymbose, or paniculate. Hypanthium hemispheric, campanulate, or obconic. Disk more or less developed, bearing many stamens. Bract-

lets small or lacking. Pistils few or many, distinct; ovules solitary; seeds inserted at the proximal end of the ovary, *i. e.*, perfectly basal; radicle inferior; style terminal, wholly deciduous.

40. **WALDSTEINIA** Willd. Neue Schr. Ges. Nat. Freunde Berlin **2**: 105. 1799.

Comaropsis Rich.; Nestler, Monog. Potent. 8. 1816.

Herbs with perennial rootstocks and membranous stipules. Leaves basal, palmately 3–5-foliolate or 3–7-lobed. Stem in our species scapiform. Hypanthium mostly obconic. Bractlets in our species mostly lacking. Disk glabrous, minutely crenulate on the free margin. Sepals 5, valvate, spreading. Petals 5, yellow, obovate. Stamens numerous; filaments subulate, flattened below, more or less persistent, withering. Pistils 1–6, inserted on a short villous receptacle; styles filiform, terminal, deciduous. Achenes obliquely ovoid, pubescent. Seeds erect; cotyledons thick, obovoid; radicle inferior.

Type species, *Waldsteinia geoides* Willd.

Leaf-blades 3–5-foliolate.
- Petals obovate or oval, much exceeding the sepals. 1. *W. fragarioides.*
- Petals elliptic, rarely exceeding the sepals. 2. *W. Doniana.*

Leaf-blades merely 3–7-lobed.
- Hypanthium and pedicels sparingly hirsute; petals elliptic. 3. *W. lobata.*
- Hypanthium and pedicels minutely glandular-puberulent; petals orbicular. 4. *W. idahoensis.*

1. **Waldsteinia fragarioides** (Michx.) Tratt. Ros. Monog. **3**: 107. 1823.

Dalibarda fragarioides Michx. Fl. Bor. Am. **1**: 300. 1803.
Comaropsis fragarioides Nestler, Monog. Potent. 8. 1816.
Geum Waldsteinia Baillon, Hist. Pl. **1**: 377. 1869.

Perennial, with a horizontal rootstock; leaves basal; petioles 1–2 dm. long, glabrous or sparingly hirsute; leaflets obovate, rounded at the apex, cuneate at the base, lobed and dentate or crenate, 2–10 cm. long, sparingly hairy on the veins or glabrate; scape erect, 1–2 dm. high; hypanthium turbinate, 3–4 mm. long, glabrous or nearly so; sepals ovate or ovate-triangular, acute, 4–5 mm. long; petals bright-yellow, obovate or oval, 6–10 mm. long; achenes 4–6, finely pubescent.

TYPE LOCALITY: Not given.
DISTRIBUTION: Woods and shady banks, from New Brunswick to Georgia, Indiana, and Minnesota.
ILLUSTRATIONS: Michx. Fl. Bor. Am. *pl. 28;* Nestler, Monog. Potent. *pl. 1;* Baillon, Hist. Pl. 1: *f. 433, 434;* Britt. & Brown, Ill. Fl. *f. 1939;* ed. 2. *f. 2273.*

2. **Waldsteinia Doniana** Tratt. Ros. Monog. **3**: 109. 1823.

Dalibarda fragarioides Sims, Bot. Mag. *pl. 1567.* 1813. Not *D. fragarioides* Michx. 1803.
Comaropsis Doniana DC. Prodr. 2: 555. 1825.
Waldsteinia parviflora Small, Bull. Torrey Club **25**: 137. 1898.

Perennial, with a horizontal rootstock; leaves basal; petioles 1–2 dm. long, sparingly hirsute or glabrate; leaflets cuneate-obovate or broadly rhomboid, 2–8 cm. long, coarsely and irregularly crenate or lobed; scape erect, commonly shorter than the leaves, sparingly hirsute or glabrate; hypanthium 2.5–3.5 mm. long, broadly obconic, usually pubescent; sepals triangular-lanceolate, more or less acuminate, 2.5–3 mm. long; petals elliptic, usually shorter than the sepals; achenes obovoid, 3 mm. long.

TYPE LOCALITY: Cultivated specimens, native of North America [Southern States].
DISTRIBUTION: In woods and shady places, from Pennsylvania to Georgia and Tennessee.
ILLUSTRATIONS: Bot. Mag. *pl. 1567;* Bot. Cab. *pl. 408* (both as *Dalibarda fragarioides*); Britt. & Brown, Ill. Fl. ed. 2. *f. 2274.*

3. **Waldsteinia lobata** (Baldw.) T. &. G. Fl. N. Am. **1**: 426. 1840.

Dalibarda lobata Baldw.; Ell. Bot. S. C. & Ga. **1**: 571. 1821.

Perennial, with a long horizontal rootstock; leaves basal; petioles 1–1.5 cm. long, finely hirsute; leaf-blades reniform or suborbicular in outline, 2.5–6 cm. in diameter, cordate at the

base, hirsute on both sides, 3–5-lobed, irregularly crenate with mucronate teeth; scape slender, hirsute, simple or corymbosely branched; hypanthium obconic, 3 mm. high, sparingly hirsute; sepals triangular-lanceolate, acute, 3–3.5 mm. long; petals elliptic, about equaling the sepals; achenes usually 1 or 2, densely pubescent.

TYPE LOCALITY: Hills on the east side of Flint River, Georgia, near the Creek Agency.
DISTRIBUTION: River banks, from southwestern Georgia to North Carolina.
ILLUSTRATION: Hook Ic. *pl. 76*.

4. **Waldsteinia idahoensis** Piper, Bull. Torrey Club **30**: 180. 1903.

Perennial, with a short stout rootstock; petioles nearly glabrous or with scattered hairs, especially at the base and below the blades, about 1 dm. long; leaf-blades orbicular, slightly 5–7-lobed, cordate at the base, coarsely and doubly crenate-dentate, sparsely hirsute above and on the margins, 2–5 cm. broad; scapes 1–2.5 dm. long, glabrous or nearly so; inflorescence glandular-puberulent, 2–7-flowered; bracts lanceolate or ovate, some of them clasping, ciliate, 2–6 cm. long; pedicels drooping, 5–20 mm. long; hypanthium obconic, 4 mm. long; sepals triangular-lanceolate, acute, minutely glandular-puberulent, 5–6 mm. long; petals yellow, orbicular, equaling the sepals; achenes 2, oblong, canescent, 2.5 mm. long.

TYPE LOCALITY: Lochsa River at the mouth of Lempke's Creek, Idaho.
DISTRIBUTION: Known only from the type locality.

Tribe **13. DRYADEAE.** Perennial herbs with rootstocks, or shrubs. Leaves various, alternate, with persistent stipules. Inflorescence mostly cymose. Bractlets mostly present. Sepals and petals normally 5, or in *Dryas* more. Hypanthium hemispheric, campanulate, or turbinate, or rarely flat, wholly persistent. Stamens 20 or more, inserted in the throat of the hypanthium. Pistils one to many; styles terminal, wholly or the lower part persistent; ovules and seeds inserted at the proximal end of the ovary, *i. e.*, perfectly basal; radicle inferior.

Pistils several or many.
- Flowers 8–10-merous; low depressed undershrubs with crenate or entire leaf-blades. — 41. DRYAS.
- Flower usually 5-merous.
  - Sepals valvate; perennial herbs with rootstocks; bractlets present; leaves pinnate.
    - Style conspicuously bent and distinctly geniculate above; upper portion usually hairy, readily deciduous. — 42. GEUM.
    - Style neither conspicuously bent nor distinctly geniculate; upper portion glabrous, persistent or tardily deciduous.
      - Styles conspicuously elongate in fruit, plumose below. — 43. SIEVERSIA.
      - Styles not much elongating in fruit, not plumose. — 44. ACOMASTYLIS.
  - Sepals imbricate in the bud; shrubs; leaves dissected, with narrow lobes.
    - Bractlets present; pistils numerous. — 45. FALLUGIA.
    - Bractlets wanting; pistils few. — 46. COWANIA.

Pistils usually solitary; shrubs.
- Sepals imbricate; leaves 3-cleft. — 47. PURSHIA.
- Sepals valvate; leaves thrice pinnatifid. — 48. CHAMAEBATIA.

41. **DRYAS** L. Sp. Pl. 501. 1753.

Ptilotum Dulac, Fl. Hautes-Pyr. 313. 1867.
Dryadea L.; Kuntze, Rev. Gen. 215. 1891.

Low depressed undershrubs, strongly cespitose, with short horizontal branches. Leaves alternate, petioled, simple, crenate or entire, white-tomentose beneath. Flowers solitary on naked peduncles. Hypanthium saucer-shaped, little developed. Bractlets wanting. Sepals 8–10, persistent. Petals 8–10, obovate or oval. Stamens numerous, inserted in the mouth of the hypanthium; filaments subulate. Pistils numerous, sessile; style terminal, persistent, elongate and plumose in fruit. Fruit indehiscent, 1-seeded. Seed basal, ascending.

Type species, *Dryas octopetala* L.

Sepals linear or linear lanceolate; petals white, spreading.
- Leaf-blades entire or with a few acutish teeth, shining and not conspicuously rugose above, broadest near the base. — 1. *D. integrifolia*.

Leaf-blades coarsely round-crenate, dull, strongly rugose and impressed-reticulate above, broadest near the middle. 2. *D. octopetala.*
Sepals ovate or ovate-lanceolate; petals yellow, strongly ascending.
Hypanthium and calyx densely hairy with black glandular hairs, only slightly tomentose. 3. *D. Drummondii.*
Hypanthium and calyx densely white-tomentose, not glandular. 4. *D. tomentosa.*

1. **Dryas integrifolia** Vahl, Skr. Nat.-Selsk. Kjøb. 4²: 171. 1798.

Dryas tenella Pursh, Fl. Am. Sept. 350. 1814.
Dryas octopetala integrifolia Hook. f. Jour. Linn. Soc. 5: 83. 1860.
Dryas integrifolia canescens Simmons, Vasc. Pl. Ellesmereland 46. 1906.

Perennial, with a matted cespitose caudex; leaves numerous, basal; petioles slender, 5–25 mm. long; leaf-blades lanceolate or elliptic-lanceolate, rounded, truncate or subcordate at the base, acutish at the apex, 6–25 mm. long, with entire revolute margins or sometimes with a few obliquely ovate, acutish teeth, especially below the middle, usually densely white-tomentose beneath, glabrate and shining or rarely tomentose (var. *canescens*) above, with faint veins, scarcely rugose; scapes 5–15 cm. long, tomentose and more or less hirsute with black glandular hairs; hypanthium and calyx tomentose and usually more or less densely black- or brown-hairy; hypanthium saucer-shaped; calyx linear or linear-lanceolate, 5 mm. long; petals white, elliptic, 8–12 mm. long; styles in fruit 2.5–3 cm. long; achenes fusiform, about 3 mm. long.

TYPE LOCALITY: Greenland.
DISTRIBUTION: Greenland, Labrador, Newfoundland, and White Mountains of New Hampshire to the Canadian Rockies and Alaska.
ILLUSTRATIONS: Fl. Dan. *pl. 1216;* Hook. Exot. Fl. *pl. 220;* Medd. Grønland. **18**: 321. *f. 3–7;* Britt. & Brown, Ill. Fl. *f. 1950;* ed. 2. *f. 2285.*

Dryas integrifolia × octopetala. *Dryas octopetala* f. *intermedia* Nathorst, Oefv. Sv. Vet.-Akad. Förh. **41**¹: 24. 1884. *Dryas integrifolia intermedia* Nathorst; Hartz, Medd. Grønland **18**: 320. 1895. Resembling *Dryas integrifolia* most in habit, but differing from the tooth-leaved form of that species in the rounded teeth and thicker leaves. Greenland to Alaska. ILLUSTRATION: Medd. Grønland **18**: 321. *f. 2.*

2. **Dryas octopetala** L. Sp. Pl. 501. 1753.

Geum chamaedryfolium Crantz, Stirp. Austr. 1: 7. 1763.
Dryas chamaedryoides Pallas, Reise **3**: 733. 1776.
Dryas alpina Salisb. Prodr. 363. 1796.
Dryas chamaedrifolia S. F. Gray, Nat. Arr. Brit. Pl. **2**: 578. 1821.
Dryas octopetala minor Hook. Trans. Linn. Soc. **14**: 387. 1824.
Ptilotum octopetalum Dulac, Fl. Hautes-Pyr. 313. 1867.
Dryas octopetala argentea Blytt, Norges Fl. 1176. 1876.
Dryadea octopetala Kuntze, Rev. Gen. 215. 1891.
Dryas octopetala hirsuta Hartz, Medd. Grønland **18**: 319. 1895.

Densely cespitose perennial, with a woody matted caudex; petioles 5–20 mm. long; blades oblong, elliptic or oval, white-tomentose beneath, glabrate and dull or rarely tomentose (var. *argentea*) above, strongly veined and impressed on the veins above, therefore becoming very rugose, 6–25 mm. long, rounded or obtuse at both ends, or subcordate at the base, strongly crenate with rounded teeth; scape 5–20 cm. long, tomentose and more or less black-hairy; hypanthium black-hairy and tomentose; sepals linear or linear-lanceolate, 5–7 mm. long; petals white, elliptic or obovate-elliptic, 1–1.5 cm. long; achenes fusiform, about 4 mm. long; styles in fruit 2.5–3 cm. long.

TYPE LOCALITY: Lapland.
DISTRIBUTION: East Greenland; Arctic British America and Alaska, southward in the mountains to Colorado; also arctic and alpine Europe and Asia.
ILLUSTRATIONS: Gartenflora **9**: *pl. 286, f. 1;* Fl. Deuts. ed. 5. *pl. 2567;* Baxter, Brit. Bot. *pl. 248;* Fl. Dan. *pl. 31;* Engl. Bot. *pl. 451;* Sv. Bot. *pl. 427;* Britt. & Brown, Ill. Fl. *f. 1949;* ed. 2. *f. 2284;* C. K. Schneid. Handb. Laubh. **1**: *f. 314 o–s;* Medd. Grønland **18**: 321. *f. 1, 8–10;* Bild. Nord. Fl. *pl. 305.*

3. **Dryas Drummondii** Richards.; Hook. Bot. Mag. *pl. 2972.* 1830.

Dryas octopetala Drummondii S. Wats. Bibl. Ind. 281. 1878.
Dryadea Drummondii Kuntze, Rev. Gen. 215. 1891.

Perennial, with a cespitose, decumbent caudex; petioles 1–3 cm. long; blades elliptic or obovate, 1–3 cm. long, white-tomentose beneath, dark-green, dull, slightly tomentose or glabrous above, veiny and somewhat rugose, coarsely crenate, usually acute at the base and

rounded at the apex; scape 5–20 cm. long, tomentose and somewhat black-hairy above; hypanthium and calyx densely pubescent with black glandular hairs and slightly tomentose; petals yellow, about 1 cm. long, elliptic-spatulate or obovate, strongly ascending, almost erect; styles 3–4 cm. long in fruit, white- or yellowish-plumose.

TYPE LOCALITY: [Canadian] Rocky Mountains.
DISTRIBUTION: Eastern Quebec to Montana, Oregon, Southern Alaska, and Mackenzie.
ILLUSTRATIONS: Bot. Mag. *pl. 2972;* Britt. & Brown, Ill. Fl. *f. 1951;* ed. 2. *f. 2286;* C. K. Schneid. Handb. Laubh. 1: *f. 314 t–w.*

4. **Dryas tomentosa** Farr, Ottawa Nat. 20: 110. 1906.

Densely cespitose perennial, with tufted caudex; petioles 5–20 mm. long; leaf-blades obovate or elliptic, 1–2 cm. long, coarsely crenate, acute at the base, rounded at the apex, tomentose on both sides, grayish-green above, white beneath; scape 5–10 cm. long, densely white-tomentose; calyx and hypanthium densely tomentose; sepals ovate, 5 mm. long; petals yellow, spatulate, 8 mm. long.

TYPE LOCALITY: Pass leading from Emerald Lake into the Yoho Valley.
DISTRIBUTION: Canadian Rockies.

42. **GEUM** L. Sp. Pl. 500. 1753.

Caryophyllata (Tourn.) Mill. Gard. Dict. Abr. ed. 4. 1754.
Stylypus Raf. Neog. 3. 1825.

Perennial herbs with rootstocks. Basal leaves lyrately odd-pinnate with large terminal divisions; stem-leaves few, reduced, most often 3-fid or the upper bractlike. Stipules persistent, adnate to the clasping bases of the petioles. Flowers cymosely corymbose. Hypanthium turbinate, hemispheric, or saucer-shaped. Bractlets 5, sometimes reduced and in one species most commonly lacking. Sepals 5, imbricate or valvate. Petals 5, orbicular, obovate, or cuneate, yellow, white, or red. Stamens numerous, in several series; filaments free, filiform. Pistils numerous, inserted on a shorter or longer, clavate receptacle; styles filiform, terminal, strongly curved and geniculate above, the upper portion deciduous. Achenes small, dry, with a hooked beak, formed by the lower persistent part of the styles. Seed erect, with membranous coat; cotyledons oblong; radicle inferior.

Type species, *Geum urbanum* L.

Sepals reflexed; upper internode of the style less than one-third as long as the lower.
  Receptacle stalked; bractlets none or rudimentary. 1. *G. vernum.*
  Receptacle sessile; bractlets normally present, seldom rudimentary.
    Receptacle glabrous; achenes sparingly hispid towards the apex, otherwise glabrous; petals ochroleucous or white. 2. *G. virginianum.*
    Receptacle hairy; achenes more or less pubescent throughout.
      Petals white or ochroleucous; receptacle long-hairy; hairs at least half as long as the achenes.
        Carpels 50–80, in heads 15–18 mm. in diameter; leaves thick; petals broadly obovate or suborbicular, ochroleucous. 3. *G. camporum.*
        Carpels 30–50 (rarely more), in heads 10–15 mm. in diameter; leaves thin; petals oblong, elliptic, or cuneate.
          Petals white or cream-colored, equaling or longer than the sepals.
            Basal leaves and lower stem-leaves simple or ternate. 4. *G. canadense.*
            Basal leaves and lower stem-leaves pinnate. 5. *G. Meyerianum.*
          Petals pale-yellow, much shorter than the sepals. 6. *G. hirsutum.*
      Petals bright- or golden-yellow; receptacle short-hairy, except in *G. urbanum.*
        Leaflets of the stem-leaves decurrent on the rachis, the upper ones confluent. 7. *G. decurrens.*
        Leaflets of the stem-leaves not decurrent.
          Lower internode of the style glandular-puberulent; receptacle short-hairy; stipules lanceolate; upper internode of the style short-hispidulous at the base or glabrate; petals usually cuneate at the base, except in *G. perincisum.*
            Divisions of the upper stem-leaves ample, rhombic or cuneate; inflorescence corymbiform, usually with short branches. 8. *G. macrophyllum.*
            Divisions of the upper small stem-leaves oblanceolate or rarely obovate; inflorescence open with slender branches.

Leaflets doubly serrate or dentate; terminal leaflet of the basal leaves rounded or reniform. 9. *G. oregonense.*
Leaflets, especially those of the upper leaves, deeply incised; terminal leaflet of the basal leaves rhombic, ovate, or subcordate. 10. *G. perincisum.*
Lower internode of the style glabrous or its lower portion sparingly hirsute, not at all glandular.
Petals golden-yellow, orbicular, rounded at the base, longer than the sepals; receptacle short-hairy.
Upper internode of the style hispid; hairs nearly 1 mm. long; lateral leaflets of the basal leaves obovate, cuneate, or rhombic, more or less incised. 11. *G. strictum.*
Upper internode of the style hispidulous; hairs scarcely 0.5 mm. long; lateral leaflets of the basal leaves orbicular or rounded-obovate, crenate-dentate. 12. *G. mexicanum.*
Petals yellow, obovate or oblong, about equaling the sepals; receptacle long-hairy. 13. *G. urbanum.*
Sepals ascending or merely spreading; upper internode of the style at least half as long as the lower internode, hirsute.
Hypanthium and calyx not purplish; stem-leaves ample; style strict in fruit; upper internode as long as the lower. 14. *G. geniculatum.*
Hypanthium and calyx purplish; stem-leaves reduced; style reflexed in fruit; upper internode about half as long as the lower. 15. *G. rivale.*

1. **Geum vernum** (Raf.) T. & G. Fl. N. Am. **1**: 422. 1840.

Stylypus vernus Raf. Neog. 3. 1825.
Geum Franckii Steud. Nom. Bot. ed. 2. **1**: 682; hyponym. 1841.
Geum parviflorum Hochst. & Steud.; Steud. Nom. Bot. ed. 2. **1**: 682, as synonym. 1841.

Perennial, with a very short rootstock; stem 3–6 dm. high, ascending, slightly pubescent; basal leaves pinnately 3–9-foliolate, with oval or obovate divisions which are 1–3 cm. long, or on the new shoots simple and reniform, 3–6 cm. wide, crenate or serrate, pilose; lower stem-leaves pinnate with doubly serrate divisions, the upper ones ternate; inflorescence open; bractlets lacking or rudimentary; sepals triangular, 1.5–2 mm. long, glabrous without, puberulent within, reflexed; petals oblong, yellow or ochroleucous, about equaling the sepals; receptacle stalked, glabrous; fruiting head about 1 cm. in diameter; body of achenes 2–2.5 mm. long, finely strigose; lower internode of the style 2–2.5 mm. long, glabrous; upper internode less than 1 mm. long, glabrous.

TYPE LOCALITY: Kentucky.
DISTRIBUTION: Meadows and borders of woods, from Ontario to New Jersey, Tennessee, Texas, and Kansas.
ILLUSTRATIONS: Hook. Ic. *pl. 286;* Britt. & Brown, Ill. Fl. *f. 1943;* ed. 2. *f. 2280.*

2. **Geum virginianum** L. Sp. Pl. 500. 1753.

Geum laciniatum Murr. Novi Comm. Gott. **5**: 30. 1775.
Caryophyllata virginiana Lam. Encyc. **1**: 399. 1783.
Geum heterophyllum Desf.; Seringe, in DC. Prodr. **2**: 550. 1825.

Perennial, with a thick rootstock; stem 3–10 dm. high, hirsute with reflexed hairs, branched above; basal leaves petioled, 1–3 dm. long, the earlier ones often with only the terminal lobe present, which is rounded-reniform, crenate and somewhat lobed, the other basal leaves pinnate with variously dissected obovate segments; lower stem-leaves similar but with shorter petioles, the upper ones 3-divided or 3-lobed, with rhombic or oblanceolate or obovate, acute or acuminate divisions; leaf-surfaces hirsute; stipules ovate, dentate; fruiting pedicels short, rigid; flowers declined; bractlets linear, about half as long as the lanceolate acuminate sepals, which are 5–6 mm. long, reflexed; petals white, oblong or cuneate, shorter than the sepals; fruiting head 1.5–2 cm. in diameter; receptacle glabrous; body of the achenes 3–4 mm. long, often sparingly hispid near the apex, otherwise glabrous; lower internode of the style 4–5 mm. long, glabrous; upper internode about 1 mm. long, sparingly pubescent with short ascending hairs.

TYPE LOCALITY: Virginia.
DISTRIBUTION: Thickets and low places, from New Brunswick to North Carolina, Missouri, and Minnesota.
ILLUSTRATIONS: Novi Comm. Gott. **5**: *pl. 2;* Hill, Veg. Syst. **12**: *pl. 50, f. 2* [?, poor]; Raf. Med. Bot. **1**: *f. 43;* Britt. & Brown, Ill. Fl. *f. 1945;* ed. 2. *f. 2275.*

3. **Geum camporum** Rydberg, sp. nov.

Perennial, with a thick rootstock; stem 5–10 dm. high, more or less short-hirsute, branched above; branches in fruit ascending-spreading; blades of the basal leaves firm, either simple, rounded-cordate, 3–6 cm. long, or ternate with rhombic-obovate divisions, somewhat lobed, irregularly dentate, sparingly pubescent on both sides; lower stem-leaves ternate, short-petioled, the upper simple, rhombic-ovate, often 3-lobed, more or less acuminate; stipules obliquely ovate, coarsely toothed; hypanthium finely pubescent; bractlets linear, one-third to one-half as long as the ovate, short-acuminate sepals; petals ochroleucous, 4–5 mm. long, about equaling or somewhat shorter than the sepals, broadly obovate or suborbicular; fruiting head 15–18 mm. broad; carpels 50–80; receptacle hispid; body of the achenes 3–3.5 mm. long, more or less hispid; lower internode of the style 3–5 mm. long, glabrous, the upper 1–1.5 mm. long, with a few hairs.

Type collected at Manhattan, Kansas, August 11, 1892, *J. B. Norton* (herb. Columbia Univ.).

DISTRIBUTION: Moist woods and among bushes in the prairie region, from South Dakota and Minnesota to Texas and Arkansas.

4. **Geum canadense** Jacq. Hort. Vind. **2**: 82. 1773.

Geum virginianum Murr. Novi Comm. Gott. **5**: 32, in part. 1775. Not *G. virginianum* L. 1753.
Geum carolinianum Walt. Fl. Car. 150. 1788.
Geum album J. F. Gmel. Syst. Nat. **2**: 861. 1791.
Caryophyllata alba Moench, Meth. 660. 1794.
Sieversia caroliniana G. Don, Gen. Hist. **2**: 528. 1832.

Perennial, with a thick rootstock; stem 3–10 dm. high, finely pubescent or glabrate, or with scattered longer hairs, corymbosely branched above; basal leaves long-petioled; blades of the earlier ones reniform or rounded-cordate, round-lobed and dentate, those of the later usually ternate, with rhombic or obovate leaflets; lower stem-leaves ternate and short-petioled, the upper often simple and subsessile, ovate, acute, and 3-lobed; hypanthium glabrous or finely pubescent; bractlets linear, scarcely half as long as the lanceolate acuminate sepals, which are 5–7 mm. long; petals white, elliptic or oblong, seldom exceeding the sepals; fruiting head 10–12 mm. in diameter; carpels 30–50, rarely more; receptacle hispid; body of the achenes 2.5–3.5 mm. long, more or less bristly; lower internode of the style 4–5 mm. long, glabrous, the upper scarcely 1 mm. long, with a few hairs.

TYPE LOCALITY: Cultivated in the botanical garden of Vienna.
DISTRIBUTION: Banks and among bushes, from Nova Scotia to Georgia, Texas, Kansas, and the Black Hills of South Dakota; central Mexico.
ILLUSTRATIONS: Jacq. Hort. Vind. **2** : *pl. 175;* Novi Comm. Gott. **5**: *pl. 3;* Britt. & Brown, Ill. Fl. *f. 1944;* ed. *2. f. 2276.*

5. **Geum Meyerianum** Rydberg.

Geum agrimonioides C. Meyer, Ind. Sem. Petrop. **11**: Suppl. 29. 1846. Not *G. agrimonioides* Pursh. 1814.

Perennial, with a thick rootstock; stem 3–10 dm. high, more or less hirsute; leaves, except the upper cauline ones, pinnate, with 3–7 leaflets; leaflets acuminate, obovate, ovate, or rhombic, incised or variously laciniate, or the terminal leaflet rounded, the upper leaflets often confluent; upper stem-leaves ternate or 3-lobed, the leaflets or lobes oblong-lanceolate, acuminate, dentate or sub-incised; bractlets linear, minute, one-fourth to one-third as long as the lanceolate acuminate sepals, which are about 6 mm. long; petals white or ochroleucous, elliptic or oval, about 6 mm. long, 3–4 mm. wide; receptacle densely hairy at least above; body of the achenes hispid above; upper internode of the style hispidulous, the lower internode 4 mm. long, glabrous.

TYPE LOCALITY: New York.
DISTRIBUTION: Quebec and Ontario to Pennsylvania and the District of Columbia.

6. **Geum hirsutum** Muhl. (Cat. 51; hyponym. 1813); Link, Enum. **2**: 65. 1822.

Geum canadense Fischer & Trautv. Ind. Sem. Petrop. **3**: 35. 1837. Not *G. canadense* Jacq. 1772.
Geum album flavum Porter, Bull. Torrey Club **16**: 21. 1889.
Geum canadense flavum Britton, Bull. Torrey Club **18**: 270. 1891.
Geum flavum Bickn. Bull. Torrey Club **23**: 523. 1896.

Perennial, with a short rootstock; stem 3–12 dm. high, strongly hirsute below, corymbosely branched above; basal leaves very variable, pinnate or simple, petioled; petioles hirsute; terminal leaflet in the earlier ones rounded or cordate, 5–10 cm. long, lobed and crenate or dentate, with or without several smaller rounded leaflets on the petioles; later basal leaves pinnately 3–7-foliolate, with the leaflets diminishing downwards, the upper leaflets usually rhombic or oblong-ovate, round-lobed, crenate-dentate; lower stem-leaves similar; upper ones 3-foliolate or 3-cleft; both surfaces pilose, the lower somewhat paler; stipules large, incised and lobed; flowers nodding; bractlets linear or oblong, often half as long as the sepals; sepals ovate, acute or short-acuminate, 4–5 mm. long; petals ochroleucous, cuneate-obovate or oblong, 2–3 mm. long; fruiting head about 1.5 mm. in diameter; receptacle hispid; body of the achenes about 4 mm. long; lower internode of the style 4 mm. long, glabrous; upper internode 1 mm. long, hirsute below.

TYPE LOCALITY: Pennsylvania.

DISTRIBUTION: Woods and banks, from Connecticut to Ohio, Georgia, and Tennessee; (?Missouri).

ILLUSTRATIONS: Britt. & Brown, Ill. Fl. *f. 1946;* ed. 2. *f. 2277.*

7. **Geum decurrens** Rydberg, sp. nov.

Perennial, with a short rootstock; stem more or less pubescent, but not conspicuously hirsute; basal leaves similar to the lower stem-leaves, but the terminal division sometimes much broader and more rounded; lower stem-leaves interruptedly pinnate, sparingly pubescent; leaflets 5–9, oblanceolate to obovate, more or less decurrent on the rachis, the upper ones more or less confluent, 1–5 cm. long, cleft and more or less doubly toothed; upper stem-leaves ternate and short-petioled; inflorescence corymbiform with short branches; bractlets lanceolate, half as long as the sepals; sepals triangular-lanceolate, 5–6 mm. long; petals orbicular or broadly oval, about 6 mm. long; receptacle pubescent; body of the achenes 3–4 mm. long, pubescent, hirsute above; lower internode of the styles glabrous, the upper short-hirsute.

Type collected at Baker's Butte, Mogollon Mountains, Arizona, July 28, 1887, *Edgar A. Mearns 59* (herb. N Y. Bot. Gard.; dupl. in herb. Columbia Univ.).

DISTRIBUTION: Arizona, New Mexico, and Colorado.

8. **Geum macrophyllum** Willd. Enum. 557. 1809.

Geum strictum β Hook. Fl. Bor. Am. 1: 175. 1832.

Perennial, with a short rootstock; stem very hirsute, especially below, with yellowish hairs; basal leaves interruptedly lyrate-pinnate; rachis hirsute; principal leaflets 5–15, the terminal one reniform or rounded, often 3-lobed, 5–10 cm. broad, the lateral ones obovate or rounded, 1–5 cm. long, hirsute on both sides, doubly-toothed; upper stem-leaves ample, 3-cleft or 3-divided, with rhombic or cuneate divisions; inflorescence corymbiform, usually with short branches; bractlets linear, minute; sepals triangular-ovate, 3–5 mm. long; petals bright-yellow, obovate or obcordate, 4–7 mm. long; fruiting head 15–18 mm. in diameter; receptacle short-hairy; body of the achenes 3–4 mm. long, appressed-pubescent and hispid above; lower internode of the style 4–5 mm. long, more or less glandular-granuliferous; upper internode about 1.5 mm. long, pubescent below with short ascending hairs.

TYPE LOCALITY: Kamtchatka.

DISTRIBUTION: Wet meadows, from Newfoundland to New Hampshire, Montana, California, and Alaska; also in eastern Siberia.

ILLUSTRATIONS: Britt. & Brown, Ill. Fl. *f. 1947;* ed. 2. *f. 2278.*

Geum macrophyllum × oregonense. See under *G. oregonense.*

Geum macrophyllum × strictum. With the habit and leaves of *G. macrophyllum*, but the stem less leafy and the petals broad and rounded at the base as in *G. strictum.* Open grounds, shore of Lake McDonald, Montana, July 27, 1901, *MacDougal 959.*

Geum macrophyllum × rivale. See under *G. rivale.*

9. **Geum oregonense** (Scheutz) Rydb. Bull. Torrey Club **25**: 56. 1898.

Geum urbanum oregonense Scheutz, Nova Acta Soc. Sci. Upsal. III. 7[6]: 26. 1870.

Perennial, with a short rootstock; stem 4–7 dm. high, densely hirsute with yellowish hairs; basal leaves interruptedly lyrate-pinnate; rachis densely hirsute; principal leaflets 5–9;

terminal leaflet reniform or rounded, 5–10 cm. broad, doubly dentate; lateral leaflets obovate or cuneate, 1–5 cm. long, more or less hirsute on both sides; upper stem-leaves small, usually ternate or 3-cleft with obovate or oblanceolate divisions, or those of the open inflorescence simple; bractlets linear, one-fourth to one-third as long as the ovate-triangular sepals, which are 3–4 mm. long; petals pale-yellow, 4–5 mm. long, obovate; fruiting head about 15 mm. in diameter; receptacle short-hairy; body of the achenes appressed-pubescent, yellowish-hirsute above; lower internode of the style 6 mm. long, glandular-granuliferous; upper internode a little more than 1 mm. long, sparingly short-hairy below.

TYPE LOCALITY: Oregon region of North America.
DISTRIBUTION: Meadows, especially in the mountains, from the Mackenzie River to Minnesota, Colorado, California, and British Columbia.

Geum macrophyllum × oregonense. With the more numerous and smaller flowers of *G. oregonense* and the long yellow pubescence characteristic of that species, but the stem more leafy and the upper stem-leaves with the broad lobes characteristic of *G. macrophyllum*. Scaget Valley, British Columbia, June 25, 1905, *J. M. Macoun 69914* (labeled *G. oregonense*). DISTRIBUTION: Yellowstone Park, Montana, and British Columbia.

Geum oregonense × strictum. Resembling *G. oregonense* in habit, leaf-form, long yellow pubescence, and structure of the styles, but more robust and with the broad, large, rounded petals of *G. strictum*. Logan, Utah, May 23, 1910, *George L. Zundel 206* (in part). DISTRIBUTION: Utah and Montana.

10. **Geum perincisum** Rydberg, sp. nov.

Perennial, with a short rootstock; stem strict, 4–6 dm. high, conspicuously hirsute with divaricate hairs; basal leaves interruptedly pinnate; principal leaflets 5–11, 1–6 cm. long, obovate or rhombic-obovate, or the terminal one ovate or cordate and then deeply 3-cleft, all more or less cleft and incised with lanceolate teeth, densely hirsute beneath, less densely so above; stipules of the stem-leaves ovate, incised, rather large; upper stem-leaves short-petioled or subsessile, 3-foliolate; leaflets oblanceolate, deeply incised or laciniate; inflorescence open, the bracts linear or with linear lobes; bractlets linear, about 1 mm. long or less; sepals ovate-triangular, 3 mm. long, soon reflexed; petals pale-yellow, oval or obovate, about 5 mm. long; receptacle densely short-hairy; lower internode of the style about 4 mm. long, glandular-pruinose; upper internode somewhat more than 1 mm. long, sparingly hispidulous below; body of the achenes pubescent and hispid above.

Type collected by the roadside, Cave Avenue, Banff, Alberta, *W. C. McCalla 2074* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Yukon Territory and the Mackenzie River to Alberta and Michigan.

11. **Geum strictum** Ait. Hort. Kew. **2**: 217. 1789.

Geum canadense Murr. Novi Comm. Gott. **5**: 33. 1775. Not *G. canadense* Jacq. 1773.
Geum heterophyllum Link, Enum. **2**: 65, as synonym. 1822.
Geum scopulorum Greene, Pittonia **4**: 148. 1900.

Perennial, with a short rootstock; stem 5–15 dm. high, strongly hirsute, especially below, also finely puberulent in the inflorescence; basal leaves interruptedly lyrate-pinnate; rachis more or less hirsute; principal leaflets 5–9, cuneate, obovate, or on the young shoots the terminal leaflet rounded or reniform, 2–10 cm. long, variously cleft or divided and double-toothed, more or less pubescent on both sides or glabrate; lower stem-leaves similar, the uppermost 3-foliolate and short-petioled; inflorescence few-flowered with ascending branches; bractlets linear, one-third as long as the sepals; sepals lanceolate, acuminate, reflexed, about 6 mm. long; petals orbicular, 5–8 mm. long, bright-yellow; receptacle densely short-pubescent; fruiting head 15–18 mm. in diameter; body of the achenes 3–4 mm. long, appressed-pubescent throughout and hispid towards the apex; lower internode of the style 4–5 mm. long, glabrous throughout, or sparingly hispid at the base; upper internode 1.5 mm. long, hirsute with hairs 0.5 mm. long.

TYPE LOCALITY: North America.
DISTRIBUTION: Low meadows, from Newfoundland to Pennsylvania, Missouri, Mexico, and British Columbia. The European and Asiatic plant known under this name is probably distinct.
ILLUSTRATIONS: Novi Comm. Gott. 5: *pl. 4B;* Britt. & Brown, Ill. Fl. *f. 1948;* ed. 2. *f. 2279.*

Geum macrophyllum × strictum. See under *G. macrophyllum*.
Geum oregonense × strictum. See under *G. oregonense*.
Geum rivale × strictum. See under *G. rivale*.

12. **Geum mexicanum** Rydberg, sp. nov.

Perennial, with a short thick rootstock; stem 3–5 dm. high, more or less hirsute and puberulent, branched above; branches ascending; basal leaves with 7–11 principal leaflets, often with smaller interposed ones, sparingly hirsute on both sides; terminal leaflet large, reniform or suborbicular, more or less round-lobed and crenate, sometimes 3-cleft, 3–7 cm. broad; lateral leaflets sessile, orbicular or rounded-obovate, 1.5–4 cm. long; stem-leaves 3–7-foliolate; leaflets oblanceolate, obovate, or rhombic; stipules obliquely ovate, coarsely toothed; bractlets 2–3 mm. long, linear, lance-linear, or subulate; sepals about 6 mm. long, ovate, short-acuminate, reflexed after anthesis; petals golden-yellow, orbicular, about 7 mm. long; fruiting head nearly 2 cm. broad; receptacle short-hairy; body of the achenes about 3 mm. long, sparingly hirsute; lower internode of the style purplish, about 5 mm. long, with a few hairs below, not glandular; upper internode 1.5 mm. long, sparingly short-hairy.

Type collected on Mount Orizaba, Mexico, at an altitude of 3000 m., August 8, 1891, *Henry E. Seaton 251* (U. S. Nat. Herb.).

DISTRIBUTION: Mountains, from Vera Cruz to Hidalgo.

13. **Geum urbanum** L. Sp. Pl. 501. 1753.

Caryophyllata urbana Scop. Fl. Carn. ed. 2. 1: 364. 1772.
Caryophyllata officinalis Moench, Meth. 660. 1794.

Perennial, with a short thick rootstock; stem 6–10 dm. high, terete, branched, finely pilose; branches spreading; basai leaves pinnately 1–7-foliolate, with the terminal or the three upper leaflets larger than the rest; terminal leaflet reniform to rhombic, usually 3-cleft, doubly dentate-serrate, 5–10 cm. long; lateral leaflets usually obovate, the larger more or less lobed; lower stem-leaves similar, the upper ones ternate or 3-lobed, with rhombic leaflets or lobes; stipules of the stem-leaves very large, ovate, incised or 3-lobed, and dentate; inflorescence corymbiform; bractlets linear or lanceolate, scarcely half as long as the sepals; sepals triangular-ovate, 3–4 mm. long; petals light-yellow, obovate or oblong, about equaling the sepals; fruiting head 15–18 mm. thick; receptacle long-hirsute; body of the achenes hirsute above, 5 mm, long; lower internode of the style 5–6 mm. long, glabrous, strongly spreading; upper internode 1 mm. long, sparingly hispidulous below, glabrate.

TYPE LOCALITY: Europe.

DISTRIBUTION: Europe and temperate Asia; adventive in the Eastern States and well established at Cambridge, Massachusetts.

ILLUSTRATIONS: Fl. Dan. *pl. 672;* Sv. Bot. *pl. 94;* Engl. Bot. *pl. 1400;* Hayne, Arzn. Gew. 4: *pl. 33;* Fl. Deuts. ed. 5. *pl. 2568;* Bild. Nord. Fl. *pl. 303.*

14. **Geum geniculatum** Michx. Fl. Bor. Am. 1: 300. 1803.

Geum virginianum Spreng. Syst. 2: 542. 1825. Not *G. virginianum* L. 1753.

Perennial, with a thick rootstock; stem 5–10 dm. high, corymbosely branched above, sparingly hirsute with sometimes retrorse hairs below, more densely pubescent above; leaves very variable, the basal ones petioled, pinnate, 1–3 dm. long; terminal division in the earliest leaves very large, reniform, 5–10 cm. in diameter, slightly lobed and crenate, the lateral ones minute or sometimes lacking; terminal segments in the later basal leaves more flabelliform and more or less cleft, the lateral ones gradually diminishing downwards, cuneate or obovate, the uppermost nearly as large as the terminal one; lower stem-leaves ternate or pinnately quinate, short-petioled; uppermost leaves 3-lobed and sessile; lobes triangular, acute and doubly serrate; both surfaces of the leaf-blades hirsute; inflorescence corymbiform-paniculate; branches hirsute and tomentose; bractlets linear, one-third as long as the sepals; sepals lanceolate, acuminate, hirsute, in fruit 6–7 mm. long; petals white with strong veins, broadly obovate, as long as or longer than the sepals; fruiting head about 1.5 cm. in diameter; body of the achenes 3.5–4.5 mm. long, hispid with long yellow hairs; lower internode of the style 5–6 mm. long, hispid below, glabrous above; upper internode 6–7 mm. long, short-hispid; receptacle bristly; bristles half as long as the body of the achenes.

TYPE LOCALITY: Canada [probably a misprint for Carolina].

DISTRIBUTION: Mountain slopes of North Carolina and eastern Tennessee.

15. **Geum rivale** L. Sp. Pl. 501. 1753.

Geum nutans Crantz, Stirp. Austr. ed. 2. 70. 1769.
Caryophyllata rivalis Scop. Fl. Carn. ed. 2. 1: 365. 1772.
Caryophyllata aquatica Lam. Fl. Fr. 3: 123. 1778.
Caryophyllata nutans Moench. Meth. 661. 1794. Not *C. nutans* Lam. 1783.
Geum nutans Raf. Am. Mo. Mag. 2: 344. 1818.
Geum Rafinesqueanum Steud. Nom. Bot. ed. 2. 1: 683. 1841.

Perennial, with a short rootstock; stem 3–6 dm. high, simple, more or less hirsute, especially below, and glandular-pilose, especially above; basal leaves lyrate-pinnate; leaflets obovate or cuneate or the terminal one rounded or reniform, 2–10 cm. long, bidentate or biserrate; stem-leaves ternate with oblanceolate or obovate leaflets; inflorescence 1–4-flowered; flowers in anthesis nodding, erect in fruit; bractlets narrowly linear, less than half as long as the sepals; sepals lanceolate, 8–12 mm. long, acuminate, densely pilose, more or less purple; petals flesh-colored or sometimes tinged with yellow, purple-veined, clawed, flabelliform, emarginate, 7–10 mm. long; receptacle densely short-hirsute, in fruit more or less stalked; body of the achenes densely hirsute, 4 mm. long; lower internode of the style about 8 mm. long, hirsute below and more or less glandular-puberulent; upper internode about 4 mm. long, hirsute.

TYPE LOCALITY: Europe.

DISTRIBUTION: In swamps and low ground, from Labrador and Newfoundland to New Jersey, Missouri, New Mexico, and British Columbia; also in Europe and Asia.

ILLUSTRATIONS: Fl. Dan. *pl. 722;* Sv. Bot. *pl. 231;* Engl. Bot. *pl. 106;* Baxter, Brit. Bot. *pl. 3;* Hayne, Arzn. Gew. 4: *pl. 34;* Fl. Deuts. ed. 5. *pl. 2570;* Britt. & Brown, Ill. Fl. *f. 1940;* ed. 2. *f. 2281;* Bild. Nord. Fl. *pl. 304.*

Geum macrophyllum × rivale. *Geum pulchrum* Fernald, Rhodora 8: 11. 1906. Resembling *G. rivale* in habit and foliage, but the flowers smaller and more numerous, the sepals widely spreading or somewhat reflexed, and the petals golden-yellow, obovate, and less clawed. Quebec, Vermont, and Alberta.

Geum rivale × strictum. *Geum aurantiacum* Fries; Scheutz, Nova Acta Soc. Sci. Upsal. III. 7^6: 30. 1870. The latter was described from cultivated specimens raised from seeds, supposed to come from the west coast of North America. From the description it seems to be a hybrid of *G. strictum* and *G. rivale,* with the habit of the former, but differing in the form and color of the petals, which are golden-yellow, obcordate, clawed at the base and emarginate at the apex, longer than the reflexed sepals; the basal leaves are those of *G. rivale.* Specimens answering this description have also been found wild: Pacific Coast, Alberta, and northern New York.

43. **SIEVERSIA** Willd. Ges. Nat. Freunde Berlin Mag. 5: 397. 1811.

Adamsia, Fisch.; Steud. Nom. Bot. Phan. 366, as synonym. 1821.
Erythrocoma Greene, Leaflets 1: 174. 1906.

Perennial herbs, with rootstocks or suffruticose bases. Basal leaves usually numerous, lyrately or odd-pinnately divided, usually with smaller segments interposed between the larger ones; stem-leaves usually reduced; stipules usually large, adnate to the petioles. Flowers solitary or corymbose-cymose. Hypanthium turbinate or hemispheric. Bractlets usually present. Sepals 5, valvate. Petals 5, white, light-yellow, pinkish, or purplish. Stamens many, in several series inserted on a disk in the mouth of the hypanthium. Pistils numerous, inserted on a short carpophore. Styles not articulate or obsoletely so, the lower portion plumose, elongate in fruit, not at all hooked or rarely slightly so, the upper portion glabrous, persistent or withering and then deciduous, but not falling off early at a distinct node. Fruit a hairy achene. Seed erect, basal; cotyledons oblong; radicle inferior.

Type species, *Sieversia anemonoides* Willd.

Basal leaves pinnate, with several leaflets of nearly the same size; styles in fruit much elongate, the lower plumose portion greatly exceeding the upper glabrous one in length.
Petals white, spreading; sepals spreading or reflexed; plant glabrous. 1. *S. pentapetala.*
Petals yellowish or pinkish, or tinged or veined with purple or red, and, as well as the sepals, erect or ascending; plant hairy.
Petals orbicular; flowers solitary, erect; stem-leaves ternate. 2. *S. glacialis.*
Petals oval or elliptic; flowers nodding; stem-leaves pinnate.
Petals broadly oval, much exceeding the obtusish sepals and the bractlets. 3. *S. campanulata.*
Petals elliptic, rarely exceeding the bractlets or sepals in length.
Leaflets cuneate, toothed at the apex.
Hypanthium at least in flower acute at the base; bractlets much exceeding the lanceolate sepals; petals elliptic. 4. *S. triflora.*
Hypanthium in flower rounded or sunken at the base; bractlets about equaling or shorter than the ovate or ovate-lanceolate sepals; petals broadly elliptic.

Bractlets linear or linear-subulate, equaling the sepals or slightly exceeding them. 5. *S. grisea.*
Bractlets oblong-linear or lanceolate, shorter than the sepals. 6. *S. canescens.*
Leaflets dissected at least half way into linear or linear-lanceolate divisions.
Bractlets longer than the sepals; hypanthium and sepals usually strongly purple-tinged. 7. *S. ciliata.*
Bractlets shorter than the sepals; hypanthium and sepals yellowish and only slightly purple-tinged.
Leaflets, except in depauperate specimens, 2–4 cm. long, ascending, scarcely glandular. 8. *S. flavula.*
Leaflets less than 1.5 cm. long, spreading, conspicuously glandular-pruinose and hirsute. 9. *S. brevifolia.*
Basal leaves with a large rounded, reniform, or broadly obovate terminal segment and much smaller, minute, or no lateral ones; styles less elongate in fruit, the lower plumose portion not exceeding the upper glabrous one in length.
Terminal segment of the basal leaves more or less indistinctly about 7-lobed, crenate-dentate; lateral segments 2 or 3 on each side, minute or none.
Terminal segment of the basal leaves truncate at the base or with a very open, shallow rounded sinus; plant almost glabrous; petals merely emarginate. 10. *S. Peckii.*
Terminal segment of the basal leaves with a rather narrow and deep basal sinus; plant distinctly hirsute.
Upper stem-leaves ovate or obovate, incised; petals deeply obcordate; style hairy only half its length. 11. *S. radiata.*
Upper stem-leaves reniform or cordate, crenate-dentate; petals merely emarginate; style hairy 2/3–3/4 its length. 12. *S. calthifolia.*
Terminal segment of the basal leaves broadly obovate, 3-lobed, dentate; lateral segments 4–9 on each side, smaller but rather ample. 13. *S. macrantha.*

1. **Sieversia pentapetala** (L.) Greene, Pittonia **4**: 49. 1899.

Dryas pentapetala L. Sp. Pl. 501. 1753.
Geum Dryas Crantz, Inst. **2**: 175. 1766.
Anemone pusilla Gaertn. Novi Comm. Acad. Petrop. **14**: 543. 1770.
Dryas anemonoides Pallas, Reise **3**: 733. 1776.
Caryophyllata kamtschatica Lam. Encyc. **1**: 400. 1783.
Geum anemonoides Willd. Sp. Pl. **2**: 1117. 1800.
Geum kamtschaticum Lam.; Poir. in Lam. Encyc. Suppl. **1**: 618. 1810.
Sieversia anemonoides Willd. Ges. Nat. Freunde Berlin Mag. **5**: 398. 1811.

More or less suffruticose perennial, with ascending or decumbent branches; leaves pinnate, crowded at the ends of the branches, glabrous; leaflets 5–7, cuneate or obovate-oblanceolate, serrate towards the apex, 5–15 mm. long; peduncles 5–15 cm. long; bractlets lanceolate, glabrous, nearly as long as the sepals; sepals ovate-lanceolate, acuminate, 7–8 mm. long; petals spreading, white, rounded-oval or obovate, about 1 cm. long; plumose part of the style 1.5–2 cm. long; glabrous upper portion scarcely 2 mm. long.

TYPE LOCALITY: Kamtschatka.
DISTRIBUTION: Aleutian Islands; also in Eastern Siberia and Japan.
ILLUSTRATIONS: Pallas, Reise **3**: *pl. Ee, f. 4, 5;* Novi Comm. Acad. Petrop. **14**: *pl. 19, f. 2, 3.*

2. **Sieversia glacialis** (Adams) Spreng. Syst. **2**: 543. 1825.

Geum glaciale Adams; Fisch. Mém. Soc. Nat. Mosc. **2**: 187. 1809.
Adamsia glacialis Fisch.; Steud. Nom. Bot. Phan. 366, as synonym. 1821.

Perennial, with a rootstock; stem mostly 1-flowered, 1–2 cm. high, hirsute with reflexed hairs; basal leaves pinnate, above sparingly, below densely pilose with long soft yellowish hairs; leaflets 11–17, less than 1.5 cm. long, oblong, usually 2-toothed (rarely 3- or 4-toothed or entire) at the apex; stem-leaves few and small, sessile, 3-fid, with the median lobe elongate; bractlets lanceolate, about 5 mm. long; sepals green, ovate, 7–8 mm. long, suberect, densely pilose; petals light-yellow, suborbicular, longer than the sepals; plumose portion of the style in fruit 1.5–2 cm. long; glabrous upper portion about 3 mm. long.

TYPE LOCALITY: On the Lena.
DISTRIBUTION: Alaska and the Arctic coast east to Mackenzie River; also eastern Siberia as far as to the mouth of the Lena.
ILLUSTRATION: Mém. Soc. Nat. Mosc. **2**: *pl. 11, f. 20.*

3. **Sieversia campanulata** (Greene) Rydberg.

Erythrocoma campanulata Greene, Leaflets **1**: 178. 1906.

Perennial, with a thick short rootstock; stem 1–2.5 dm. high, 1–3-flowered, purple-tinged, finely pilose and with a few scattered long hairs; basal leaves interruptedly pinnate, 3–7 cm. long; rachis silky-pilose; principal leaflets rather crowded, obovate-cuneate, 1–1.5 cm. long, pilose on both sides, 3–6-cleft more than half way down into linear-oblong divisions; bractlets linear or linear-subulate, about 5 mm. long; hypanthium hemispheric, strongly reddish-purple, pilose and viscid; sepals broadly ovate or deltoid-ovate, acute, 6–7 mm. long; petals broadly oval, rounded at the apex, yellowish, tinged and veined with crimson.

TYPE LOCALITY: Olympic Mountains, Washington.
DISTRIBUTION: Olympic Mountains.
ILLUSTRATION: Muhlenbergia **8**: *pl. 2, f. 6.*

4. **Sieversia triflora** (Pursh) R. Br.; Richards. Bot. App. Frankl. Journey ed. 2. 21. 1823.

Geum triflorum Pursh, Fl. Am. Sept. 736. 1814.
Sieversia rosea Graham, Edinb. New Phil. Jour. **11**: 193. 1831.
Geum Grahami Steud. Nom. Bot. ed. 2. **1**: 682. 1841.
Erythrocoma triflora Greene, Leaflets **1**: 175. 1906.
Erythrocoma cinerascens Greene, Leaflets **1**: 175. 1906.
Erythrocoma affinis Greene, Leaflets **1**: 175. 1906.

Perennial, with a thick rootstock; stem finely pilose and somewhat hirsute, 2–4 dm. high, mostly cymosely 3-flowered; basal leaves 1–2 dm. long, interruptedly pinnate; rachis more or less hirsute; principal leaflets 7–15, at the apex 2- or 3-cleft less than half their length, each lobe 2- or 3-toothed, with ovate teeth, finely puberulent, somewhat glandular on both sides and hirsute on the veins beneath; stem-leaves small, pinnate with linear divisions; hypanthium densely pilose, more or less turbinate at the base, at least in anthesis, purple; bractlets linear-subulate, 12–18 mm. long, longer than the lanceolate sepals; petals yellowish or flesh-colored, narrowly elliptic, nearly as long as the bractlets; plumose part of the style 3–4 cm. long; glabrous upper portion about 5 mm. long, withering, at last usually deciduous.

TYPE LOCALITY: "Upper Louisiana" [South Dakota].
DISTRIBUTION: Hills, from Newfoundland to New York, Illinois, Nebraska, Montana, and Alberta.
ILLUSTRATIONS: Bot. Cab. *pl. 1609;* Bot. Mag. *pl. 2858;* Muhlenbergia **8**: *pl. 1, f. 2; pl. 3, f. 1, 2, 7.*

5. **Sieversia grisea** (Greene) Rydberg.

Erythrocoma grisea Greene, Leaflets **1**: 178. 1906.
Erythrocoma arizonica Greene, Leaflets **1**: 179. 1906.
Erythrocoma tridentata Greene, Leaflets **1**: 179. 1906.
Erythrocoma aliena Greene, Leaflets **1**: 179. 1906.

Perennial, with a thick rootstock; stem 2–3 dm. high, purple-tinged, pilose throughout; basal leaves interruptedly pinnate, 5–15 cm. long; principal leaflets cuneate or obovate-cuneate, 1–2 cm. long, pilose on both sides and ciliate on the margins, rather pale, yellowish-green, usually 3-cleft to near the middle and again toothed, sometimes merely 3–5-toothed at the apex; rachis hirsute; bractlets linear-subulate, about 1 cm. long, equaling or sometimes slightly exceeding the sepals; hypanthium hemispheric or slightly sunken at the base, tinged with scarlet or rose; calyx triangular-lanceolate or lance-ovate, attenuate-acuminate, about 1 cm. long; petals elliptic or oblong-spatulate, about equaling the bractlets; plumose part of the fruiting style about 3 cm. long; glabrous portion 3–4 mm. long.

TYPE LOCALITY: San Francisco Mountains, Arizona.
DISTRIBUTION: Mountains, from Wyoming, Montana, Washington, and Oregon to New Mexico and Chihuahua.
ILLUSTRATION: Muhlenbergia **8**: *pl. 3, f. 5, 6, 8, 9.*

Sieversia ciliata × grisea. See under *S. ciliata.*

6. **Sieversia canescens** (Greene) Rydberg.

Erythrocoma canescens Greene, Leaflets **1**: 178. 1906.

Perennial, with a thick woody rootstock; stem 2–4 dm. high, seldom purple-tinged, finely pilose throughout, usually 3-flowered; basal leaves interruptedly pinnate, 8–15 cm. long;

rachis hirsute; leaflets obovate-cuneate, 1–2.5 cm. long, densely pilose and ciliate on the margins and veins, 2–3-cleft and toothed or sometimes merely 3–5-toothed at the apex; bractlets oblong-linear or lanceolate, 6–8 mm. long; hypanthium hemispheric or sunken at the base; sepals broadly ovate-lanceolate or ovate, acute, about 1 cm. long; petals elliptic or elliptic-obovate, slightly exceeding the sepals; plumose part of the styles, in fruit, 2.5–3 cm. long; naked portion 3 mm. long. (Scarcely distinct from the preceding.)

TYPE LOCALITY: Volcanic cone above Ebbet's Pass, northern Sierra Nevada, California.
DISTRIBUTION: Mountains of Washington, Idaho, Oregon, and California.
ILLUSTRATIONS: Muhlenbergia 8: *pl. 1, f. 1; pl. 3, f. 10.*

7. **Sieversia ciliata** (Pursh) G. Don, Gen. Hist. 2: 528. 1832.

Geum ciliatum Pursh, Fl. Am. Sept. 352. 1814.
Geum pubescens Hook. Fl. Bor. Am. 1: 175. 1832.
Erythrocoma dissecta Greene, Leaflets 1: 177. 1906.
Erythrocoma ciliata Greene, Leaflets 1: 177. 1906.
Erythrocoma ciliata ornata Greene, Leaflets 178. 1906.

Perennial, with a thick rootstock; stem 2–5 dm. high, finely pilose and silky-hirsute, cymosely 3–15-flowered; basal leaves interruptedly pinnate, 1–2 dm. long; rachis more or less silky-hirsute; principal leaflets 9–19, obovate in outline, 2–5-divided at least half way down, then cleft and toothed with linear or linear-lanceolate lobes or teeth, finely pilose-puberulent and more or less densely silky-ciliate on the veins and margins; bractlets linear-subulate, usually equaling or exceeding the sepals; sepals finely pilose, ovate-lanceolate, acuminate, 8–10 mm. long; petals broadly elliptic or oval, flesh-colored or yellowish, sometimes margined with purple, about equaling the sepals; plumose part of the style about 3 cm. long; upper glabrous portion 3–4 mm. long.

TYPE LOCALITY: Banks of the Kooskooskie [Idaho].
DISTRIBUTION: Mountains and hills, from Alberta to New Mexico, Utah, Washington, and British Columbia.
ILLUSTRATIONS: Britt. & Brown, Ill. Fl. *f. 1942;* ed. *2. f. 2282;* Muhlenbergia 8: *pl. 1, f. 3, 4, 5; pl. 2, f. 1–5, 7, 8.*

Sieversia ciliata × grisea. *Erythrocoma australis* Greene, Leaflets 1: 176. 1906. Forms intermediate between the two species are found where the two grow together, but rare. *Baker 214* in Dr. Greene's herbarium, the type of *E. australis*, is near *Erythrocoma arizonica*, (*i. e.*, the common form of *S. grisea*), while the same number in the U. S. Nat. Herb. is nearer *S. ciliata*, and that in herb. N. Y. Bot. Gard. is typical *S. ciliata*.

8. **Sieversia flavula** (Greene) Rydberg.

Erythrocoma flavula Greene, Leaflets 1: 177. 1906.

Perennial, with a short rootstock; stem 2–3 dm. high, rather slender, yellowish, only slightly tinged with red, finely pilose; basal leaves interruptedly pinnate, 5–15 cm. long; rachis puberulent and hirsute; principal leaflets cuneate or rhombic-cuneate, divided below the middle into oblong or linear divisions, finely puberulent and ciliate on the margins and veins, yellowish-green; hypanthium low, hemispheric; bractlets linear-subulate, 5–7 mm. long, usually shorter than the sepals; sepals deltoid-lanceolate, acute or acuminate, yellow, merely purple-veined; petals yellow, oval, barely exceeding the sepals, about 1 cm. long; plumose portion of the styles, in fruit, 3–3.5 cm. long; naked portion 5–6 mm. long. (Scarcely distinct from *S. ciliata.*)

TYPE LOCALITY: Wind River Mountains, Wyoming.
DISTRIBUTION: Mountains of Wyoming and Montana.
ILLUSTRATION: Muhlenbergia 8: *pl. 1, f. 6.*

9. **Sieversia brevifolia** (Greene) Rydberg.

Erythrocoma brevifolia Greene, Leaflets 1: 176. 1906.

Perennial, with a short thick rootstock; stem 1–2 dm. high with few reduced leaves, pilose; basal leaves numerous, short, 4–8 cm. long, interruptedly pinnate; rachis hirsute and glandular-pruinose; principal leaflets cuneate in outline, divaricate, about 1 cm. long, deeply cleft into 4–7 oblong, obtuse or acute segments, hirsute and glandular-pruinose; hypanthium hemispheric; bractlets linear, somewhat shorter than the elliptic or lance-elliptic acute sepals, purple-veined; petals yellow, elliptic or oval, about 1 cm. long, equaling the sepals; style bent

above; plumose portion of the styles, in fruit, 2.5–3 cm. long; glabrous portion about 4 mm. long. (Closely related to *S. ciliata*.)

TYPE LOCALITY: Middle Utah.
DISTRIBUTION: Central Utah.

10. **Sieversia Peckii** (Pursh) R. Br. Bot. Mag. *pl. 2863*. 1828.

Geum Peckii Pursh, Fl. Am. Sept. 352. 1814.
Geum radiatum Peckii A. Gray, Man. ed. 2. 117. 1856.

Perennial, with a short erect rootstock; stem erect, scapiform, glabrous, 2–5 dm. high; basal leaves pinnate, but the lateral divisions very small; petioles 5–10 cm. long, glabrous or sparingly ciliate; terminal leaflet round-reniform, truncate at the base or with an open sinus, palmately round-lobed and doubly dentate, ciliate on the margins, otherwise glabrous or nearly so, and shining; lateral leaflets obovate, cuneate, or ovate, 5–20 mm. long; stem-leaves small; blades united with the stipules, ovate or lanceolate, acute; inflorescence 1–7-flowered; hypanthium obconic, in fruit 1 cm. high and broad, puberulent and sparingly hirsute; bractlets linear or subulate, 3 mm. long; sepals 5–8 mm. long, ovate, acuminate; petals yellow, rounded-obovate, 10–15 mm. long, rounded or merely emarginate at the apex; styles in fruit about 1 cm. long, hairy one-half or two-thirds their length.

TYPE LOCALITY: White Hills [Mountains] of New Hampshire.
DISTRIBUTION: Mountains of New Hampshire and Maine.
ILLUSTRATIONS: Bot. Mag. *pl. 2863;* Britt. & Brown, Ill. Fl. *f. 1941* (as *Geum radiatum*); ed. 2. *f. 2283.*

11. **Sieversia radiata** (Michx.) R. Br.; G. Don, Gen. Hist. **2**: 528. 1832.

Geum radiatum Michx. Fl. Bor. Am. **1**: 300. 1803.

Perennial, with a short woody rootstock; stem 2–5 dm. high, hirsute; basal leaves pinnate, but the lateral leaflets minute; petioles hirsute, 5–15 cm. long; terminal leaflets reniform with a narrow sinus, 5–10 cm. broad, sparingly short-hairy above, long-hirsute beneath, especially on the veins, obscurely lobed, sharply doubly dentate; lateral leaflets lanceolate, minute, less than 5 mm. long; stem-leaves sessile, obovate, rounded at the apex; inflorescence 1–5-flowered, with short branches; hypanthium rounded-obconic, in fruit 4 mm. high and 6 mm. broad, viscid-puberulent and hirsute; bractlets linear or subulate, obtuse, 3–5 mm. long; sepals lance-ovate, acuminate, 8–10 mm. long; petals yellow, about 1 cm. long, broadly obcordate; styles in fruit fully 1 cm. long, plumose at the base only.

TYPE LOCALITY: High mountains of Carolina.
DISTRIBUTION: Mountains of North Carolina and eastern Tennessee.

12. **Sieversia calthifolia** (Menzies) D. Don; (T. & G. Fl. N. Am. **1**: 425, as synonym. 1840) D. Dietr. Syn. Pl. **3**: 193. 1843.

Geum rotundifolium Langsd.; Fisch. & Mey. Mém. Soc. Nat. Mosc. **2**: 187. 1809. Not *G. rotundifolium* Moench. 1794.
Geum calthifolium Menzies; Smith, in Rees, Cycl. **16**: *Geum* no. 13. 1810.
Geum radicatum Pursh, Fl. Am. Sept. 352, in part. 1814. Not *G. radicatum* Michx. 1803.
Adamsia rotundifolia Fisch.; Steud. Nom. Bot. Phan. 367, as synonym. 1821.
Sieversia congesta R. Br. Chlor. Melv. 18, as synonym. 1823.
Sieversia rotundifolia Cham. & Schlecht. Linnaea **2**: 4. 1827.
Sieversia radiata Hook. Fl. Bor. Am. **1**: 177, in part. 1832.
Geum calthifolium dilatatum T. & G. Fl. N. Am. **1**: 425. 1840.
Geum calthifolium rotundifolium T. & G. Fl. N. Am. **1**: 425. 1840.
Geum calthifolium congestum T. & G. Fl. N. Am. **1**: 425. 1840.
Geum kamtschaticum Pallas; T. & G. Fl. N. Am. **1**: 425, as synonym. 1840.
Sieversia calthifolia dialata D. Dietr. Syn. Pl. **3**: 193. 1843.
Sieversia calthifolia rotundifolia D. Dietr. Syn. Pl. **3**: 193. 1843.
Sieversia calthifolia congesta D. Dietr. Syn. Pl. **2**: 193. 1843.

Perennial, with a rootstock; stem 1–3 dm. high, more or less hirsute; basal leaves pinnate, but the lateral leaflets 2–6, very small; terminal leaflet broad, rounded-reniform, 5–10 cm. wide with a narrow sinus, with about 7 rounded lobes, crenate-dentate, more or less hirsute, at least on the veins; stem-leaves sessile, clasping, incised-lobed and dentate; hypanthium broadly obconic; bractlets oblong or elliptic, 3–4 mm. long; sepals acute, triangular-ovate to

lance-ovate, often more or less toothed; petals yellow, 8–10 mm. long, broadly obovate; rounded or retuse at the apex; styles plumose more than half their length.

TYPE LOCALITY: West Coast of America.
DISTRIBUTION: Aleutian Islands, Alaska, Yukon, and British Columbia; also in Kamtschatka.
ILLUSTRATION: Mém. Soc. Nat. Mosc. **2**: *pl. 11, f. 17.*

13. **Sieversia macrantha** Kearney, sp. nov.

? *Geum calthifolium* Scheutz, Nova Acta Soc. Sci. Upsal. III. 7[6]: 58. 1870. Not *G. calthifolium* Menzies. 1810.

Hairy perennial; rootstock stoutish, clothed with persistent stipules and bases of old leaves; flowering stem ascending, about 2 dm. high, rather sparingly leafy; basal leaves lyrate-pinnatifid, 8–16 cm. long, 11–15-foliolate, the terminal and two uppermost lateral segments obovate in outline, crenate-dentate, 3–5 cm. long, the remaining lateral segments smaller, the alternate pairs much reduced; larger 1–2 cm. long, obovate, sparingly lobed or merely toothed, the middle lobe 3–5-cleft and crenate-dentate; cauline leaves lobed or cleft and the divisions toothed; flowers about 3 cm. in diameter; sepals ovate or ovate-lanceolate; petals nearly orbicular, 12–15 mm. long; style sparingly hairy; ovary villous; fruit not seen.

Type collected in an alpine meadow about 540 m. above sea level, at Kukak Bay, Alaska Peninsula, July 1–5, 1899, *Coville & Kearney 1696* (U. S. Nat. Herb.).

44. **ACOMASTYLIS** Greene, Leaflets 1: 174. 1906.

Low cespitose perennials, with strong rootstocks. Basal leaves numerous, pinnately divided, with numerous cleft or toothed divisions; stem-leaves few, reduced and with few divisions. Flowers terminal, solitary or in 2–4-flowered cymes. Hypanthium more or less turbinate (from obconic to nearly saucer-shaped, but with an acute base). Bractlets present, mostly lanceolate, shorter than the broader sepals. Petals 5, obovate, oval, or suborbicular, yellow. Stamens numerous, inserted in the mouth of the hypanthium; filaments filiform, anthers broadly oval, emarginate at both ends. Pistils numerous; ovaries hirsute, lanceolate, tapering into the glabrous, persistent styles, which are not elongate in fruit; ovules basal; radicle inferior.

Type species, *Geum Rossii* Seringe.

Hypanthium nearly saucer-shaped, fully twice as broad as deep.
  Flowers rarely less than 2.5 cm. broad; sepals rather strongly veined, more or less tinged with purple.
    Leaflets merely toothed or lobed; plant more or less silky-hirsute, at least on the rachis and margins of the leaves. 1. *A. humilis.*
    Leaflets deeply cleft or divided; plant merely puberulent or glabrate. 2. *A. Rossii.*
  Flowers about 2 cm. broad; sepals obscurely veined; leaflets appressed-silky.
    Leaflets 9–15, ascending, not crowded. 3. *A. gracilipes.*
    Leaflets 15–21, spreading, crowded. 4. *A. depressa.*
Hypanthium decidedly turbinate, at least two-thirds as deep as broad; flowers rarely more than 2 cm. in diameter.
  Leaves densely silky-canescent. 5. *A. sericea.*
  Leaves puberulent, somewhat glandular-granuliferous or glabrate, not silky. 6. *A. turbinata.*

1. **Acomastylis humilis** (R. Br.) Rydberg.

Sieversia humilis R. Br. (Chlor. Melv. 18, name only. 1823); Cham. & Schlecht. Linnaea **2**: 6. 1827.
Geum Rossii humilis T. & G. Fl. N. Am. **1**: 424, in part. 1840.
Geum humile Steud. Nom. Bot. ed. 2. **1**: 682. 1841.
Sieversia Rossii humilis Ledeb. Fl. Ross. **2**: 25. 1844.

Perennial, with a thick scaly rootstock; stem 1–2 dm. high, densely short-pilose, almost velvety, especially above; basal leaves interruptedly pinnate, 5–8 cm. long; principal leaflets 7–11, obovate, 1–2 cm. long, 5–11-toothed, pilose or subvillous; stem-leaves 1–3, pinnatifid, with 3–7 oval entire divisions; hypanthium saucer-shaped or nearly so, about 4 mm. high and 8 mm. broad; bractlets elliptic, acute, 3–4 mm. long; sepals ovate, 7–8 mm. long; petals yellow, broadly obovate, 10–12 mm. long; achenes long-hairy.

TYPE LOCALITY: Unalaska.
DISTRIBUTION: Aleutian and Pribiloff Islands, Alaska; also in Siberia.

2. **Acomastylis Rossii** (R. Br.) Greene, Leaflets 1: 174. 1906.

Sieversia Rossii R. Br. Chlor. Melv. 18. 1823.
Geum Rossii Seringe, in DC. Prodr. 2: 553. 1825.

Perennial, with a thick, scaly rootstock; stems 1–3 dm. high, glabrous below, finely puberulent above; basal leaves interruptedly pinnatifid, 5–10 cm. long, sparingly puberulent or glabrate, ciliolate on the margins; principal segments 11–17, obovate or cuneate in outline, 8–15 mm. long, 3–5-toothed or sometimes cleft; stem-leaves 1–3, small, pinnately 3–7-parted; flowers 1–3; hypanthium short-turbinate or nearly saucer-shaped, about 4 mm. high and 8 mm. broad, short-pilose; bracts lance-oblong or elliptic, 4–5 mm. long; sepals broadly ovate, acuminate, 6–8 mm. long; petals yellow, broadly obovate, about 1 cm. long, venose; body of the achenes lanceolate, 2.5 mm. long, hirsute-strigose; style glabrous, about 4 mm. long.

TYPE LOCALITY: Melville Island.
DISTRIBUTION: Arctic America, from Melville Island to Bering Sea; also in Kamtschatka.
ILLUSTRATION: R. Br. Chlor. Melv. *pl. C.*

3. **Acomastylis gracilipes** (Piper) Greene, Leaflets 1: 174. 1906.

Potentilla gracilipes Piper, Bull. Torrey Club 27: 392. 1900.
Sieversia gracilipes Greene, Leaflets 1: 4. 1903.

Perennial, with a thick rootstock and caudex; basal leaves many, pinnatifid, silvery-sericeous on both sides, 4–6 cm. long; divisions 9–15, broadly cuneate in outline, three-cleft at the apex or entire; stem 1-flowered, 6–8 cm. long, pubescent; stem-leaves 1 or 2, entire or 3-lobed, small; hypanthium saucershaped or nearly so, silky-strigose; bractlets elliptic, smaller than the sepals; sepals broadly ovate, acutish, 6–7 mm. long; petals orbicular, 1 cm. long.

TYPE LOCALITY: Face of north cliffs, Blue Mountains, head of Anthony's Creek, Oregon.
DISTRIBUTION: Known only from the type locality.

4. **Acomastylis depressa** Greene, Leaflets 1: 174. 1906.

Perennial, with a very thick rootstock and caudex; stem less than 1 cm. high, scapiform, one-flowered; basal leaves numerous, 3–5 cm. long, pinnatifid; divisions 15–21, crowded, about 1 cm. long, cuneate in outline, usually 3-cleft, silky as well as glandular-pruinose; stem-leaves few, greatly reduced, simple or 3–5-divided; hypanthium saucer-shaped or nearly so; bractlets lanceolate, 3–4 mm. long; sepals ovate, 6–7 mm. long; petals orbicular or somewhat obcordate, 7–8 mm. long.

TYPE LOCALITY: Mount Stewart, Washington.
DISTRIBUTION: Known only from the type collection.

5. **Acomastylis sericea** Greene, Leaflets 1: 174. 1906.

Geum Rossii β S. Wats. Bot. King's Expl. 85. 1871.
Geum sericeum Greene, Pittonia 3: 172. 1897.
Sieversia sericea Greene, Pittonia 4: 50. 1899.

Perennial, with a thick rootstock, covered with numerous dry sheaths; stem 1–3 dm. high, slender, silky; basal leaves interruptedly pinnatifid, 5–10 cm. long, densely silky-villous (the hairs on the lower side long); principal segments 15–25, cuneate in outline, 5–12 mm. long, 2–5-cleft, with oblong or lanceolate lobes; stem-leaves 1–3, reduced and with fewer divisions; hypanthium short-turbinate, 4–5 mm. high and broad; bractlets lanceolate, about one-third shorter than the triangular-ovate sepals; petals yellow, orbicular, 8–10 mm. long; achenes long-hairy; style about as long as the body.

TYPE LOCALITY: Ruby Mountains, Nevada.
DISTRIBUTION: Mountains, from Nevada and Idaho to Wyoming and Montana.

6. **Acomastylis turbinata** (Rydb.) Greene, Leaflets 1: 174. 1906.

Potentilla nivalis Torr. Ann. Lyc. N. Y. 1: 32. 1823. Not *P. nivalis* Lapeyr. 1782.
Geum triflorum Torr. Ann. Lyc. N. Y. 2: 195. 1827. Not *G. triflorum* Pursh. 1814.
Geum turbinatum Rydb. Bull. Torrey Club 24: 91. 1897.
Sieversia turbinata Greene, Pittonia 4: 50. 1899.
Sieversia scapoidea A. Nelson; Coult. & Nelson, Man. 263. 1909.
Acomastylis arapahoensis Daniels, Univ. Mo. Stud. Sci. 2: 146. 1911.

Perennial, with a thick rootstock; stem slender, 0.5–3 dm. high, silky-strigose or glabrate; basal leaves pinnatifid, 5–15 cm. long, silky-strigose or glabrate; segments 11–33, oblanceolate,

obovate, or cuneate in outline, 3–5-cleft or toothed, with lanceolate or oblong teeth or lobes; stem-leaves 1–3, pinnatifid with 3–13 lanceolate divisions; hypanthium obconic-turbinate, about 5 mm. high and broad; bractlets and sepals often tinged with purple, the former 3–4 mm. long, lanceolate, the latter ovate, short-acuminate, 5–6 mm. long; petals yellow, broadly obovate or obcordate, 6–8 mm. long; body of the achenes 2.5–3 mm. long, strigose; style 3–4 mm. long.

TYPE LOCALITY: Rocky Mountains [Colorado].
DISTRIBUTION: Mountains, from Montana to New Mexico, Arizona, and Nevada.
ILLUSTRATION: Ann. Lyc. N. Y. **1**: *pl. 3, f. 2.*

45. **FALLUGIA** Endl. Gen. Pl. 1246. 1840.

Low shrubs with straw-colored branches and flaky bark. Leaves pinnately dissected into linear divisions, revolute on the margins, and with small stipules. Flowers solitary or few at the ends of the branches, peduncled; hypanthium hemispheric, persistent, villous within. Sepals 5, imbricate. Bractlets present. Petals 5, white, rounded, spreading. Stamens numerous, inserted on the margin of the hypanthium in three series. Pistils numerous, villous, on a conic receptacle; style terminal; stigma minute; ovules solitary, erect, basal. Fruit of coriaceous, villous, oblong achenes with, in fruit, elongate, plumose, persistent styles. Seeds linear; radicle inferior.

Type species, *Sieversia paradoxa* D. Don.

1. **Fallugia paradoxa** (D. Don) Endl.; Torr. in Emory, Notes Mil. Rec. 140. 1848.

Sieversia paradoxa D. Don, Trans. Linn. Soc. **14**: 576. 1825.
Geum ? cercocarpoides DC.; Seringe, in DC. Prodr. **2**: 554. 1825.
Geum paradoxum Steud. Nom. Bot. ed. 2. **1**: 682. 1841.
Fallugia mexicana Walp. Rep. **2**: 46. 1843.
Fallugia paradoxa acuminata Wooton, Bull. Torrey Club **25**: 306. 1898.
Fallugia micrantha Cockerell, Entom. News **12**: 41. 1901.
Fallugia acuminata Cockerell, Proc. Acad. Phila. **1903**: 590. 1903.
Fallugia acuminata micrantha Cockerell, Proc. Acad. Phila. **1904**: 109. 1904.

A shrub 5–10 dm. high, much branched; bark white, in age somewhat shreddy; branches short-pilose and more or less villous (in var. *acuminata* rather copiously so); leaves pinnatifid with 3–7 linear, revolute divisions, puberulent, villous or in age glabrate, rusty-lepidote beneath, 1–2 cm. long; flowers few in corymbiform cymes; hypanthium hemispheric, 4–5 mm. high, silky-villous; sepals very variable, 8–10 mm. long, often rose-tinged, villous; outer ones lanceolate or ovate, long-acuminate-caudate, in the typical Mexican form usually 3-cleft at the apex, the inner broader, ovate or rounded-oval, often membranous-margined and the acumination often dorsal; bractlets linear-subulate to lanceolate, shorter than the sepals; petals obovate to elliptic, 1.5–2 cm. long, obtuse; pistils numerous, the styles, in fruit, 3–4 cm. long.

TYPE LOCALITY: Mexico.
DISTRIBUTION: Texas and southern Colorado to Utah, Arizona, and northern Mexico.
ILLUSTRATIONS: Trans. Linn. Soc. **14**: *pl. 22, f. 7–10;* G. Don, Gen. Hist. **2**: *f. 70;* Moc. & Sessé, Calq. Dess. *pl. 296;* E. & P. Nat. Pfl. **3**^{3}: *f. 16 D–F;* Torr. in Emory, Notes Mil. Rec. *pl. 2;* C. K. Schneid. Handb. Laubh. **1**: *f. 314 g–n.*

46. **COWANIA** D. Don, Trans. Linn. Soc. **14**: 574. 1825.

Greggia Engelm. in Wisliz. Tour. Northern Mex. 114. 1848.

Shrubs or small trees. Leaves alternate, toothed or pinnatifid, or entire, coriaceous, glandular-dotted, mostly with revolute margins and tomentulose beneath. Flowers solitary, terminal, on short branches. Hypanthium wholly persistent, more or less turbinate. Sepals 5, imbricate, persistent. Petals 5, obovate, spreading. Stamens numerous in two series, inserted in the throat of the hypanthium. Pistils 4–12, or in one species only 1–3, distinct, sessile, densely villous-hirsute; style terminal, plumose, persistent, elongate in fruit; stigma terminal; ovules solitary. Fruit of lanceolate or oblong achenes, striate, villous-hirsute; seeds linear; radicle inferior.

Type species, *Cowania mexicana* D. Don.

Leaves toothed, lobed, or pinnatifid.
- Petals purple or rose; leaves obovate-spatulate, 5–9-toothed; sepals cuspidate-acuminate. — 1. *C. plicata.*
- Petals white or ochroleucous; leaves 3–5-cleft; sepals rounded at the apex.
  - Pistils and carpels 4–12; style in fruit distinctly plumose.
    - Hypanthium campanulate, abruptly contracted into the pedicel; primary divisions of the leaves entire. — 2. *C. mexicana.*
    - Hypanthium funnelform, gradually contracted into the pedicel; divisions of the leaves usually again cleft or toothed.
      - Hypanthium usually longer than the pedicel. — 3. *C. Stansburiana.*
      - Hypanthium scarcely more than half as long as the pedicel. — 4. *C. Davidsonii.*
  - Pistils and carpels 1–3; style in fruit not much elongate, hirsute, but scarcely plumose. — 5. *C. alba.*

Leaves entire, spinulose-tipped. — 6. *C. ericaefolia.*

1. **Cowania plicata** D. Don; Sweet, Brit. Fl. Gard. II. *pl. 400.* 1838.

Cowania purpurea Zucc. Abh. Akad. Münch. **4**²: 7. 1845.
Greggia rupestris Engelm. in Wisliz. Tour. Northern Mex. 114. 1848.
Greggia purpurea Engelm.; Hemsl. Biol. Centr. Am. Bot. **1**: 374. 1880.

Shrub 5–20 dm. high, with brownish more or less glandular branches, white-tomentose when young; leaf-blades obovate-spatulate, 6–20 mm. long, dentate, somewhat revolute on the margins, glandular above, especially on the margins and veins, white-tomentose beneath; stipules adnate to the short petioles, the free tips subulate; flowers terminal, solitary; pedicels 2–5 mm. long, densely glandular; hypanthium campanulate, 4–5 mm. long, glandular; sepals imbricate, ovate, 5–6 mm. long, somewhat tomentose and glandular on the back, abruptly acuminate, the inner more or less scarious-margined; petals purple or rose, broadly obovate, rounded or retuse at the apex, imbricate, 10–12 mm. long; stamens numerous in several series; pistils 6–10, distinct; body of the achenes silky-villous, 6–7 mm. long; style in fruit about 4 mm. long; glabrous tips about 1 mm. long.

TYPE LOCALITY: Raised from seeds from the uplands of Mexico.
DISTRIBUTION: Northern Mexico.
ILLUSTRATIONS: Sweet, Brit. Fl. Gard. II. *pl. 400;* Abh. Akad. Münch. **4**²: *pl. 2;* Loud. Arb. *f. 2455.*

2. **Cowania mexicana** D. Don, Trans. Linn. Soc. **14**: 575. 1825.

Geum ? dryadoides DC.; Seringe, in DC. Prodr. **2**: 554. 1825.

An erect branched shrub, 1–*2* m. high, with short branches and brown bark, tomentose when young; leaves 3-cleft, with oblong, entire lobes, glandular-punctate above, but without stalked glands, white-tomentose beneath, and revolute-margined, 5–10 mm. long; stipules adnate to the short petioles, the free portion lanceolate; flowers solitary, terminal; pedicels 2–5 mm. long, tomentose, the glands sessile and often hidden in the tomentum; hypanthium campanulate, 3–4 mm. long, rather abruptly contracted into the pedicel; sepals imbricate, rounded, ovate, or obovate, rounded at the apex, 3 mm. long, tomentose when young, with sessile glands; petals yellow, broadly obovate, about 8 mm. long; stamens many; filaments filiform; pistils 5–10, densely villous; body lance-oblong, 3–4 mm. long; styles about 4 cm. long; glabrous tips 1–2 mm. long.

TYPE LOCALITY: Mexico.
DISTRIBUTION: Central Mexico.
ILLUSTRATIONS: Trans. Linn. Soc. **14**: *pl. 22, f. 1–6;* Moc. & Sessé, Calq. Dess. *pl. 297;* E. & P. Nat. Pfl. **3**³: *f. 16 a–c.*

3. **Cowania Stansburiana** Torr. in Stansb. Expl. Utah 386. 1852.

Cowania plicata Torr. in Frém. Rep. 314. 1845. Not *C. plicata* D. Don. 1838.
Cowania mexicana A. Gray, Pl. Wright. **2**: 55. 1853. Not *C. mexicana* D. Don. 1845.

A shrub 1–3.5 m. high; bark of the stem gray and shreddy; that of the older branches gray and shining; that of the young branchlets reddish-brown and glandular; leaves obovate in outline, 8–15 mm. long, glandular-punctate and green above, more or less tomentulose beneath, revolute-margined, pinnately 3–5-divided, if 3-divided the divisions usually again divided or toothed; flowers solitary, terminal; pedicels 2–8 mm. long, with stalked glands; hypanthium turbinate-funnelform, 4–6 mm. long, more or less glandular and more or less tomentose when young; sepals 4 mm. long, rounded, ovate, obtuse, or some acutish at the apex; petals sulphur-yellow, cream-colored, or white, broadly obovate, 8–10 mm. long; stamens

numerous; filaments filiform; pistils 5–10; styles in fruit 4–5 cm. long; glabrous tips 2–3 mm. long.

TYPE LOCALITY: Stansbury Island, Great Salt Lake, Utah.
DISTRIBUTION: Dry hills from New Mexico and southern Colorado to Nevada, southern California, and northern Mexico.
ILLUSTRATIONS: Stansb. Expl. Utah *pl. 3;* C. K. Schneid. Handb. Laubh. 1: *f. 314 a–f* (as *C. mexicana*).

4. **Cowania Davidsonii** Rydberg, sp. nov.

A branched shrub; bark of the older branches ashy-gray, that of the young twigs chestnut-brown, glandular and slightly tomentose at first; leaves 1 cm. long, mostly 3-cleft, but some of the divisions usually toothed, minutely glandular-punctate above, white-tomentose beneath, slightly revolute-margined; flowers terminal, solitary; pedicels 5–8 mm. long, with stalked glands; hypanthium funnelform-obconic, 4–5 mm. long, glandular; sepals rounded-ovate, rounded or acutish at the apex, 4 mm. long, more or less tomentose; petals broadly obovate, 8 mm. long, yellowish; stamens many; filaments filiform; pistils 5–8; styles in fruit about 4 cm. long; glabrous tips scarcely more than 1 mm. long.

Type collected on Blue River, Arizona, September 8, 1902, *A. Davidson 754* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Arizona.

5. **Cowania alba** Goodding, Bot. Gaz. **37**: 55. 1904.

Cowania mexicana dubia Brand. Zoe **5**: 149. 1903.

A branched shrub, 1.5–2.5 m. high, with white bark; leaves 3–5-cleft at the end, tapering into broad petioles, 8–10 mm. long, dark-green and glandular-dotted above, barely tomentose beneath, strongly revolute on the margins; flowers terminal, solitary; hypanthium narrowly funnel-form, glandular-dotted and silvery-tomentose; sepals oblong, obtuse, 3 mm. long; petals white, obovate, irregular, distinctly clawed; pistils 2 or rarely 3; tail of the fruit short, scarcely plumose, hirsute. (Perhaps a hybrid of *C. Stansburiana* and *Purshia tridentata.*)

TYPE LOCALITY: Bunkerville, Nevada.
DISTRIBUTION: Nevada.

6. **Cowania ericaefolia** Torr.; A. Gray, Pl. Wright. **2**: 106. 1853.

Cowania Havardi S. Wats. Proc. Am. Acad. **20**: 364. 1885.

A straggling bush, 3–10 dm. high; bark dark-brown and fissured; young twigs very short, more or less tomentose when young; leaves linear-subulate, entire, 4–6 mm. long, with strongly revolute margins and spinulose tips, more or less fascicled at the ends of the branches; pedicels about 5 mm. long, sparingly glandular; hypanthium campanulate-funnelform, 3 mm. long; sepals elliptic, 4 mm. long, obtuse, slightly tomentose and with stalked glands; petals white or yellowish, 6–8 mm. long; pistils about 8; styles in fruit 1.5–2.5 cm. long; naked tips 1 mm. long.

TYPE LOCALITY: Rio Grande, below Presidio del Norte, Texas.
DISTRIBUTION: Western Texas.

47. **PURSHIA** DC.; Poir. in Lam. Encyc. Suppl. **4**: 623. 1816.

Tigarea Pursh, Fl. Am. Sept. 333. 1814. Not *Tigarea* Aubl. 1775.
Kunzia Spreng. Anl. ed. 2. **2**: 869. 1818.

Shrubs with spreading branches. Leaves alternate, crowded, apparently fascicled, deeply 3-cleft with revolute margins. Flowers solitary, terminating short branches. Hypanthium turbinate or funnelform, persistent. Sepals 5, imbricate. Petals 5, yellow. Stamens about 25, in one series, inserted on the margin of the hypanthium. Pistils 1, rarely 2, lance-oblong, tapering into a short persistent style, which does not greatly elongate in fruit; stigma decurrent on one side; ovule solitary, basal, erect. Seed oblong, obovate, without endosperm; radicle inferior.

Type species, *Tigarea tridentata* Pursh.

Leaves pubescent on both sides, white-tomentose beneath; glands not sunken into the tissue of the leaves. 1. *P. tridentata.*
Leaves glabrous at least above; glands sunken into the tissue of the leaves. 2. *P. glandulosa.*

1. **Purshia tridentata** (Pursh) DC. Trans. Linn. Soc. **12**: 158. 1817.

Tigarea tridentata Pursh, Fl. Am. Sept. 333. 1814.
Kunzia tridentata Spreng. Syst. **2**: 275. 1825.

A shrub 1–3 m. high; bark chestnut-brown or grayish; twigs somewhat tomentose and sparingly glandular when young, leafy at the ends; leaves cuneate in outline, 5–30 mm. long, 3-lobed at the apex, white-tomentose and revolute-margined beneath, glabrate or slightly tomentose above when young; flowers solitary, short-pedicelled; hypanthium funnelform, about 4 mm. long, tomentulose or puberulent, with a few glandular hairs; sepals oblong or elliptic, tomentulose, rounded at the apex, 3–4 mm. long; petals spatulate-obovate, 7–9 mm. long; fruit fusiform, with the short style 15 mm. long, velutinous and slightly glandular; seeds black.

TYPE LOCALITY: Prairies of the Rocky Mountains [Montana].
DISTRIBUTION: Montana to New Mexico, California, and British Columbia.
ILLUSTRATIONS: Pursh, Fl. Am. Sept. *pl. 15;* Hook. Fl. Bor. Am. *pl. 58;* Bot. Reg. *pl. 1446;* Loud. Arb. **2**: *f. 424, 425;* C. K. Schneid. Handb. Laubh. **1**: *f. 315 l–p; f. 317 a.*

2. **Purshia glandulosa** Curran, Bull. Calif. Acad. **1**: 153. 1885.

Kunzia glandulosa Greene, Pittonia **2**: 299. 1892.
Purshia tridentata glandulosa M. E. Jones, Proc. Calif. Acad. II. **5**: 680. 1895.

Shrub 1–3 m. high, with brown or gray bark; leaves 5–10 mm. long, slightly tomentose when young, but green and glabrate in age, conspicuously glandular-punctate on the margin, 3-cleft (rarely 5-cleft) at the apex, with linear-oblong divisions; flowers solitary, short-pedicelled; hypanthium funnelform, tomentulose, 5 mm. long; sepals elliptic, 3 mm. long, rounded at the apex; petals yellow, spatulate, 5–6 mm. long; fruit narrowly fusiform, with the style 15 mm. long; seeds flesh-colored.

TYPE LOCALITY: Mohave side of Tehachapi Pass, California.
DISTRIBUTION: Southern California and Nevada.
ILLUSTRATION: C. K. Schneid. Handb. Laubh. **1**: *f. 317 b–f.*

48. **CHAMAEBATIA** Benth. Pl. Hartw. 308. 1848.

Erect, glandular-pubescent, fragrant shrubs. Leaves twice or thrice pinnate with numerous minute segments. Flowers cymose-paniculate. Hypanthium wholly persistent, turbinate-campanulate. Sepals 5, valvate. Petals 5, white, spreading. Stamens very numerous in several series in the throat of the hypanthium. Pistils solitary; style terminal, villous at the base, not conspicuously elongate in fruit; stigma decurrent on one side; ovules solitary, erect, basal. Fruit an obovoid coriaceous achene; seed with a little endosperm; radicle inferior.

Type species, *Chamaebatia foliolosa* Benth.

Leaves obovate or ovate in outline; ultimate divisions 0.5–1 mm. long, elliptic; ovary more or less white-hirsute. — 1. *C. foliolosa.*
Leaves lanceolate in outline; ultimate divisions rarely more than 0.5 mm. long, oval or rounded; ovary glabrous. — 2. *C. australis.*

1. **Chamaebatia foliolosa** Benth. Pl. Hartw. 308. 1848.

An erect shrub, 3–10 dm. high, with brownish-black smooth bark; branches numerous, leafy, glandular-hirsute and tomentulose when young; leaves thrice pinnatifid, obovate or ovate in outline, 2–10 cm. long, 1.5–6 cm. wide, viscid, glandular-hirsute on the rachis and its branches; ultimate divisions elliptic, 0.5–1 mm. long, gland-tipped; stipules small, linear; cymes few-flowered, terminating the young branches; bracts leafy, pinnatifid or toothed; pedicels glandular-hirsute; hypanthium turbinate, 4 mm. high, densely glandular-hispid without, villous within; sepals lanceolate or ovate-lanceolate, short-acuminate, about 4 mm. long; petals white, obovate, 6–8 mm. long; filaments filiform; anthers orbicular; ovary more or less white-hirsute.

TYPE LOCALITY: Mountains near Sacramento, California.
DISTRIBUTION: Western slope of the Sierra Nevada, California.
ILLUSTRATIONS: Torr. Pl. Frém. *pl. 6;* Bot. Mag. *pl. 5171;* Hortic. Fr. 1861: *pl. 2;* C. K. Schneid. Handb. Laubh. **1**: *f. 317 g–n;* E. & P. Nat. Pfl. 3^3: *f. 18 E–G.*

2. **Chamaebatia australis** (Brand.) Abrams, Bull. Torrey Club **34**: 263. 1907.

Chamaebatia foliolosa australis Brand. Bot. Gaz. **27**: 447. 1899.

A low shrub with almost black smooth bark; young branches very leafy, short pilose-tomentose and slightly glandular; leaves thrice or twice pinnatifid, lanceolate in outline, 3–6 cm. long, 1–2 cm. wide, viscid-pubescent and only slightly glandular; ultimate divisions oval or rounded, rarely more than 0.5 mm. long; stipules linear; cymes 1–4-flowered, glandular-hirsute; bracts foliaceous, pinnatifid; hypanthium turbinate, glandular-hirsute without, villous within, 4 mm. high; sepals ovate or elliptic, 3 mm. long, abruptly mucronate; petals white, 4–5 mm. long. broadly obovate or subobcordate; ovary glabrous.

TYPE LOCALITY: La Grulla, Lower California.
DISTRIBUTION: San Diego County, California; northern Lower California.

Tribe **14. CERCOCARPEAE.** Shrubs or trees with hard wood. Leaves alternate, simple, toothed or entire-margined; stipules adnate to the petioles. Flowers axillary, solitary or fasciculate. Hypanthium with a cylindric persistent tube, abruptly widening into a turbinate or campanulate, deciduous limb. Sepals 5, from broadly triangular to nearly subulate. Corolla wanting. Stamens 15 or more, inserted at different heights on the limb of the hypanthium; filaments subulate or filiform, distinct; anthers subrotund or broadly elliptic, emarginate at each end, affixed dorsally above the base, dehiscent longitudinally. Pistil solitary, inserted in the bottom of the hypanthium; ovary cylindric-fusiform, sessile; style terminal, elongate, plumose; stigma undivided, terminal. Ovules solitary, basal. Seed cylindric; cotyledons linear.

49. CERCOCARPUS H.B.K. Nov. Gen. & Sp. **6**: 232. 1823.

Characters of the tribe.

Type species, *Cercocarpus fothergilloides* H.B.K.

Leaves more or less toothed, at least at the apex, or if entire, neither coriaceous nor revolute-margined nor resinous.
  Leaves coriaceous; veins very strong and raised on the lower surface, impressed on the upper.
    Leaves serrate or dentate.
      Leaves oval or elliptic, acute or obtusish at the apex; lateral veins usually 12–20 (in smaller leaves rarely 9–11) on each side. — 1. *C. macrophyllus.*
      Leaves obovate to orbicular, rounded at the apex; lateral veins 5–10 on each side.
        Leaves not conspicuously white-tomentose beneath; lateral veins 7–10. — 2. *C. fothergilloides.*
        Leaves conspicuously white-tomentose beneath; lateral veins 5–8 on each side.
          Tube of the hypanthium about 1 cm. long; tail of the fruit about 5 cm. long, stout. — 3. *C. Traskiae.*
          Tube of the hypanthium 6–7 mm. long; tail of the fruit very slender, 3–4 cm. long. — 4. *C. mojadensis.*
    Leaves crenate. — 5. *C. Pringlei.*
  Leaves not coriaceous; veins less prominent, neither conspicuously raised nor impressed on either surface.
    Leaves 2–6 cm. long, toothed at least at and above the middle.
      Hypanthium and young leaves villous with spreading hairs.
        Leaves with coarse ovate teeth.
          Leaves elongate-obovate, 3–6 cm. long; lateral veins 5–8 on each side; tail of fruit 8–10 cm. long. — 6. *C. macrourus.*
          Leaves broadly obovate, 1.5–3 cm. long; lateral veins 4–6 on each side; tail of fruit 6–8 cm. long. — 7. *C. montanus.*
        Leaves with very short, broad, triangular, apiculate-tipped teeth.
          Leaves obovate or oblanceolate. — 8. *C. Douglasii.*
          Leaves broadly oval to suborbicular.
            Leaves 1–3 cm. long; limb of the hypanthium 4–5 mm. wide. — 9. *C. rotundifolius.*

Leaves 4–5 cm. long; limb of the hypanthium 6–7 mm. wide. 10. *C. alnifolius.*
Hypanthium and young leaves silky-strigose.
Leaves soon glabrate, thin, with very small broad and acute teeth.
Limb of the hypanthium with the sepals 6–7 mm. wide. 11. *C. betuloides.*
Limb of the hypanthium with the sepals 2–3 mm. wide. 12. *C. minutiflorus.*
Leaves permanently pubescent, with rather coarse teeth, firmer.
Leaves obovate, flabelliform, 1–2 cm. long, coarsely dentate. 13. *C. flabellifolius.*
Leaves oblanceolate or obovate, 2–4 cm. long, densely silvery-white beneath, toothed at and above the middle, usually with obtuse teeth. 14. *C. argenteus.*
Leaves rarely more than 2 cm. long, toothed at the apex only, or entire.
Hypanthium and leaves villous; tube of hypanthium 6–7 mm. long.
Pubescence short. 15. *C. eximius.*
Pubescence long and shaggy. 16. *C. paucidentatus.*
Hypanthium and young leaves silky-strigose; tube of hypanthium less than 6 mm. long. 17. *C. breviflorus.*
Leaves entire, from linear to elliptic, coriaceous, with more or less revolute margins, resinous.
Leaf-blades 1.5–3 cm. long; tail of fruit 4–6 cm. long.
Leaf-blades elliptic, only slightly revolute, in age merely tomentulose beneath; petioles 3–5 mm. long. 18. *C. ledifolius.*
Leaf-blades linear, strongly revolute, permanently white villous-tomentose beneath; petioles 1–2 mm. long. 19. *C. hypoleucus.*
Leaf-blades 5–15 mm. long, narrowly linear, strongly revolute; only the midrib of the lower surface exposed; tail of fruit 3–4 cm. long.
Leaves short-villous when young. 20. *C. arizonicus.*
Leaves glabrous from the beginning. 21. *C. intricatus.*

1. **Cercocarpus macrophyllus** C. K. Schneid. Handb. Laubh. 1: 530. 1905.

Large shrub or small tree; branches thick, at first cinerascent, sericeous-villous, in age glabrescent or glabrous, brown; leaves petioled, large for the genus; blades thick, elliptic or oval, rounded, subcordate or short-cuneate at the base, acute or obtuse at the apex, green and glabrous or nearly so above, cinereous beneath, grayish-villous and rugose between the veins, sharply serrate; lateral veins 9–20 (usually 12–20) on each side, very prominent beneath; flowers in fascicles of 5–10, long-pedicelled; tube of the hypanthium 5–7 mm. long, sericeous-villous; limb together with the sepals 6 mm. wide; sepals triangular; achenes 7 mm. long; style in fruit 5–6 cm. long.

TYPE LOCALITY: Orizaba, Vera Cruz.
DISTRIBUTION: Central and southern Mexico.

2. **Cercocarpus fothergilloides** H.B.K. Nov. Gen. & Sp. 6: 233. 1823.

Shrub or low tree, 1–5 m. high; branches terete, smooth, glabrous, somewhat angled and sericeous when young; leaves simple, petioled, alternate; petioles 3–8 mm. long; blades obovate or oval, 2.5–4.5 cm. long, 1.5–3.5 cm. broad, coriaceous, rounded at the apex, dentate-serrate except at the acute base, somewhat tomentose on both sides when young, in age green, glabrous and glossy above, pale and rugose beneath; lateral veins 7–10 on each side, very prominent beneath; flowers in fascicles of 5–10, pedicelled; tube of the hypanthium more or less sericeous, in flower about 5 mm. long, in fruit 7–9 mm.; throat glabrous; limb puberulent within, sericeous without, together with the sepals 5 mm. wide; sepals ovate-triangular, obtuse; stamens about 20; filaments subulate-filiform, unequal; achenes 7–8 mm. long; style in fruit 4–5 cm. long.

TYPE LOCALITY: Near the city of Mexico.
DISTRIBUTION: Central Mexico.
ILLUSTRATIONS: H. B. K. Nov. Gen. & Sp. *pl. 559;* E. & P. Nat. Pfl. 3^3: *f. 17;* Baillon, Hist. Pl. 1: *f. 436, 437;* C. K. Schneid. Handb. Laubh. 1: *f. 318 a, b.*

3. **Cercocarpus Traskiae** Eastw. Proc. Calif. Acad. III. 1: 136. 1898.

A tree, 3–7.5 m. high, with a trunk 5–25 cm. in diameter; bark rough, grayish-brown; branches downy-tomentose; petioles stout, about 5 mm. long; leaf-blades orbicular to oval, 2–6 cm. long, 1–5 cm. wide, obtuse or acutish at the apex, subcordate, truncate or rarely cuneate at

the base, deeply dentate to nearly entire, glabrous and glossy in age above, densely white-tomentose beneath; lateral veins about 7–8 on each side, very prominent beneath; flowers polygamous, in fascicles of 3–7, pedicelled; tube of the hypanthium about 1 cm. long, densely villous-tomentose; limb open-campanulate, tomentose without, glabrous within, together with the sepals 5–8 mm. broad; sepals broadly triangular; stamens numerous; filaments slender; anthers tomentose, the cells oblong; achenes 1 cm. long, silky-strigose; style in fruit about 5 cm. long.

TYPE LOCALITY: Salte Verde, Santa Catalina Island, California.
DISTRIBUTION: Santa Catalina Island.
ILLUSTRATIONS: Proc. Calif. Acad. III. 1: *pl. 11, f. 7a–7e;* Sargent, Man. *f. 418;* Britton, N. Am. Trees *f. 370;* C. K. Schneid. Handb. Laubh. 1: *f. 318 c;* Sudw. Forest Trees Pacif. Slope *f. 157.*

4. **Cercocarpus mojadensis** C. K. Schneid. Handb. Laubh. 1: 530. 1905.

A shrub or low tree; branches thick, densely short-villous; leaves short-petioled; petioles thick, villous, about 5 mm. long; leaf-blades at first white-villous on both sides, 2–4 cm. long, 1.5–2.5 mm. broad, oval or obovate, acute at the base, rounded or obtuse at the apex, white-tomentose beneath, irregularly dentate; lateral veins 5–8, very prominent beneath; flowers subsessile in fascicles of 3–5; tube of the hypanthium 6–7 mm. long, villous; limb campanulate, villous without, glabrate within, together with the sepals 3–4 mm. wide; sepals broadly triangular, acute; style very slender, in fruit 3–4 cm. long.

TYPE LOCALITY: Sierra Mojada Mountains, Coahuila.
DISTRIBUTION: Coahuila.

5. **Cercocarpus Pringlei** (C. K. Schneid.) Rydberg.

Cercocarpus mojadensis Pringlei C. K. Schneid. Mitt. Deuts. Dendr. Ges. **14**: 126. 1905.

A tree up to 8 m. high; branches finely tomentose; petioles 5–10 mm. long; leaf-blades oblong, obovate, or oblong-elliptic, 3–6.5 cm. long, 1.5–4 mm. broad, acute and cuneate at the base, rounded or obtuse at the apex, crenate with broad rounded teeth, in age glabrous above. white-tomentose, rugose-reticulate beneath; lateral veins about 7, rather distant; flowers in fascicles of 5 or more, subsessile; tube of the hypanthium 7–8 mm. long, densely villous; limb campanulate, 2–3 mm. broad; sepals triangular, acute; fruit unknown.

TYPE LOCALITY: [La Hoya Cañon], Oaxaca.
DISTRIBUTION: Oaxaca.

6. **Cercocarpus macrourus** Rydberg, sp. nov.

A small tree; twigs sparingly villous when young, soon glabrous and with brown bark; petioles 1 cm. long or less; leaf-blades oval or obovate, 3–6 cm. long, coarsely toothed above the middle, with triangular teeth, dark-green, short-pilose or in age glabrous above, pale, villous and tomentulose beneath, rounded or obtuse at the apex, cuneate at the base; lateral veins 5–8 on each side; flowers solitary or in pairs, distinctly pedicelled; tube of the hypanthium 8–10 mm. long, villous-pilose; limb hemispheric, villous-pilose without, glabrous within, together with the sepals 7–8 mm. broad; sepals triangular, acute; achenes 10–12 mm. long, silky; style in fruit 8–10 cm. long.

Type collected on rocky hillsides, Modoc County, California, June 20 and July 23, 1893, *Milo S. Baker* (herb. Columbia Univ.).
DISTRIBUTION: Northern California and Southern Oregon.
ILLUSTRATION: Sudw. Forest Trees Pacif. Slope *f. 159* (as *C. parvifolius*).

Cercocarpus ledifolius × macrourus. Most resembling *C. macrourus*, but the leaves oblong or oblanceolate, only toothed at the apex or subentire, and with the margins somewhat inrolled. Near Barclay Spring, Modoc Point, Oregon, Sept. 22, 1902, *Coville 1523*, in part, together with the two parents.

7. **Cercocarpus montanus** Raf. Atl. Jour. 146. 1832.

Cercocarpus fothergilloides Torr. Ann. Lyc. N. Y. **2**: 198. 1827. Not *C. fothergilloides* H. B. K. 1823.
Cercocarpus parvifolius Nutt.; H. & A. Bot. Beech. Voy. 337. 1838.
Cercocarpus parvifolius hirsutissimus C. K. Schneid. Handb. Laubh. **1**: 532. 1905.
Cercocarpus parvifolius typicus C. K. Schneid. Mitt. Deuts. Dendr. Ges. **14**: 126. 1905.

Shrub 1–2 m. (rarely 3 m.) high, with grayish, fissured, persistent bark; branches sparingly pilose when young; petioles 3–6 mm. long, pilose or silky; leaf-blades broadly obovate, 2–5 cm.

long, 1.5–2.5 cm. wide, coarsely serrate with ovate teeth, neither very thick nor rugose, rounded at the apex, acute at the base, green and loosely pilose above when young, more silky in age, pale and finely tomentose beneath; lateral veins 4–6 on each side, not very prominent beneath; flowers solitary or two or three together in the axils of the leaves, pedicelled; tube of the hypanthium about 1 cm. long, pilose; limb campanulate or somewhat turbinate, pilose without, glabrous within, together with the sepals 6–7 mm. wide; sepals broadly triangular, acute; achenes about 10 mm. long, appressed silky-hirsute; style in fruit 6–8 cm. long.

TYPE LOCALITY: Rocky Mountains [Colorado].
DISTRIBUTION: Hills and mountain-sides, from South Dakota to western Kansas, New Mexico, Utah, and Montana.
ILLUSTRATIONS: Britt. & Brown, Ill. Fl. *f. 1952* (as *C. parvifolius*); ed. 2. *f. 2287*.

8. **Cercocarpus Douglasii** Rydberg, sp. nov.

Cercocarpus parvifolius Nutt.; H. & A. Bot. Beech Voy. 337, in part. 1838.
Cercocarpus betulaefolius typicus C. K. Schneid. Handb. Laubh. 1: 531. 1905.
Cercocarpus betulaefolius Blancheae C. K. Schneid. Mitt. Deuts. Dendr. Ges. **14**: 127, in part. 1905.

Tree up to 5 m. high, with gray rough bark; branches canescent when young, glabrate; petioles 5–10 mm. long; leaf-blades oblong-obovate, dentate above the middle with small teeth, rounded at the apex, acute at the base, rather firm, villous-canescent when young, in age glabrate and green above, grayish-tomentose beneath, 2–4 cm. (rarely 5 cm.) long, 1–3 cm. wide; lateral veins 5–8 on each side; flowers usually 2 or 3 in the axils; tube of the hypanthium 8–9 mm. long, villous-tomentose; limb campanulate, villous without, glabrous within, together with the sepals 6–7 mm. broad; sepals broadly triangular, acute; achenes 12–15 mm. long, silky; style in fruit 7–8 cm. long.

Type collected in California, *D. Douglas*.
DISTRIBUTION: California and southern Oregon, near the coast.
ILLUSTRATIONS: Hook. Ic. *pl. 323;* Sargent, Man. *f. 419;* Sargent, Silva *pl. 166* (all as *C. parvifolius*); C. K. Schneid. Handb. Laubh. 1: *f. 316 a–e, 318 d, e* (as *C. betulaefolius*).

9. **Cercocarpus rotundifolius** Rydberg, sp. nov.

A shrub with dark-brown bark and villous young twigs; petioles 2–3 mm. long; leaf-blades broadly rounded-oval or nearly orbicular, dentate above the middle, thin, dark-green and sparingly pilose or soon glabrous above, softly villous beneath, 1–3 (rarely 4) cm. long; lateral veins 4–6 on each side; teeth broadly triangular, mucronate-acute; flowers 2 or 3 together; tube of the hypanthium densely villous, about 7 mm. long; limb turbinate, together with the sepals 6–7 mm. broad, villous without; achenes about 1 cm. long; style in fruit 6–7 cm. long.

Type collected in Los Angeles County, southern California, March, 1901, *Geo. B. Grant 3488* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Southern California and Lower California.

10. **Cercocarpus alnifolius** Rydberg, sp. nov.

Cercocarpus betulaefolius Blancheae C. K. Schneid. Mitt. Deuts. Dendr. Ges. **14**: 127, mainly. 1905.

Tree 5–10 m. high, with a trunk 2–5 dm. in diameter; bark gray, rough, on the older parts much cracked; branches glabrate; petioles about 1 cm. long; leaf-blades rounded-oval, 3–6 cm. long, 2.5–4 cm. wide, sparingly appressed-pubescent when young but glabrate above, somewhat villous-tomentulose beneath, dentate with short and broad teeth; lateral veins 6 or 7 on each side; tube of the hypanthium about 12 mm. long, villous-tomentose; limb hemispheric-campanulate, together with the sepals 6–7 mm. wide, villous-tomentose without, glabrate within; sepals broadly triangular, obtuse; achenes about 12 mm. long, silky; style in fruit 5–6 cm. long, usually strongly curved.

Type collected at Avalon, Santa Catalina Island, California, June, 1896, *Blanche Trask* (U. S. Nat. Herb.).

11. **Cercocarpus betuloides** Nutt.; T. & G. Fl. N. Am. 1: 427. Je 1840.

Cercocarpus betulaefolius Nutt.; Hook. Ic. *pl. 322*. O 1840.
Cercocarpus parvifolius glaber S. Wats. Bot. Calif. **1**: 175. 1876.
Cercocarpus parvifolius betuloides Sargent, Silva **4**: 66. 1892.
Cercocarpus betulaefolius typicus f. *glabrescens* C. K. Schneid. Handb. Laubh. **1**: 531. 1905.

A tree 3–10 m. high, with smooth bark, separating into scales falling off in the autumn; branches glabrous or nearly so; petioles 2–4 mm. long, appressed-hairy or glabrate; leaf-blades obovate or oval, 1.5–5 cm. long, 1–2.5 cm. wide, crenate-serrate above the middle with short teeth, rounded at the apex, cuneate at the base, sparingly appressed-hairy when young, soon glabrate, dark-green above, paler beneath, comparatively thin; lateral veins 5 or 6 on each side, not very thick beneath; tube of the hypanthium 8–10 mm. long, silky-strigose; limb turbinate, silky-strigose without, glabrous within, together with the sepals 6 mm. broad; sepals broadly triangular, obtuse; stamens rather numerous; achenes 10–12 mm. long; style in fruit 6–7 cm. long.

TYPE LOCALITY: Santa Barbara, California.
DISTRIBUTION: Central and southern California near the coast; Lower California.
ILLUSTRATIONS: Hook. Ic. *pl. 322;* Britton, N. Am. Trees *f. 369;* C. K. Schneid. Handb. Laubh. **1**: *f. 318 f.*

12. **Cercocarpus minutiflorus** Abrams, Bull. Torrey Club **37**: 149. 1910.

A shrub 2–2.5 m. high, with grayish smooth bark; branches glabrous or slightly strigose when young; petioles 2–5 mm. long, glabrate; leaf-blades obovate, rounded at the apex, cuneate at the base, serrate above the middle, 1–2 cm. long, thin, glabrous and shining on both sides, slightly paler beneath; lateral veins 3–5 on each side; flowers solitary, rather long-pedicelled; pedicels about 7 mm. long; tube of the hypanthium 10–12 mm. long, glabrous or slightly strigose; limb strigose without, glabrous within, together with the sepals 2–3 mm. broad; sepals subulate-triangular; mature fruit unknown.

TYPE LOCALITY: Hills near San Dieguito (Bernardo), California.
DISTRIBUTION: San Diego County, California.

13. **Cercocarpus flabellifolius** Rydberg, sp. nov.

A low shrub with gray, smooth, flaky bark; branches short, sparingly strigose when young, soon glabrous; petioles 1–3 mm. long, strigose; leaf-blades obovate-flabelliform, 1–2 cm. long and nearly as broad, coarsely dentate above the middle, appressed silky-strigose on both sides, dark-green above, pale beneath, the teeth usually broader than long; lateral veins 3–5 on each side; flowers 1 or 2 in the axils, subsessile or with very short pedicels; tube of the hypanthium silky-strigose; limb campanulate, silky-strigose without, puberulent within, together with the sepals 5 mm. wide; sepals triangular, acute; anthers somewhat hairy; achenes about 8 mm. long; style in fruit 6–7 cm. long.

Type collected on hills near Glenwood, Utah, at an altitude of 2100 m., May 29, 1875, *L. F. Ward* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Central and southern Utah and northeastern New Mexico.

14. **Cercocarpus argenteus** Rydberg, sp. nov.

A bush 2–3 m. high, with gray bark; young twigs white-villous; petioles 2–5 mm. long; leaf-blades oblanceolate or obovate, 2–4 cm. long, obtuse or rarely rounded at the apex, cuneate at the entire base, crenate above and at the middle, densely pilose above, silvery-white and villous-tomentose beneath; lateral veins 4 or 5 on each side, directed forward; teeth rounded-ovate, obtuse; flowers solitary or in pairs; tube of the hypanthium 8–10 mm. long, silky; limb silky without, turbinate, together with the sepals 6–7 mm. wide; achenes about 1 cm. long; style in fruit 6–7 cm. long.

Type collected on rocky bluffs on Red River, Randall County, Texas, June 9, 1901, *H. Eggert* (herb. Mo. Bot. Gard.).
DISTRIBUTION: Colorado, Texas, and New Mexico.

15. **Cercocarpus eximius** (C. K. Schneid.) Rydberg.

Cercocarpus parvifolius paucidentatus S. Wats. Proc. Am. Acad. **17**: 353, in part. 1882.
Cercocarpus paucidentatus Britton, Trans. N. Y. Acad. Sci. **14**: 31, in part. 1894.
Cercocarpus breviflorus Sargent, Silva **13**: 27. 1902. Not *C. breviflorus* A. Gray. 1852.
Cercocarpus breviflorus eximius C. K. Schneid. Handb. Laubh. **1**: 530. 1905.

A straggling shrub up to 4.5 m. high, or rarely a tree 5–7 m. high, with grayish, fissured bark, somewhat reddish when young, the branches villous-canescent; petioles 2–4 mm. long;

leaf-blades thick, 1.5–3 cm. long, 8–12 mm. wide, obovate, spatulate, or elliptic, few-toothed at the rounded apex or nearly entire, cuneate at the base, softly pilose when young, green above, densely tomentulose beneath; lateral veins 4 or 5 on each side, directed strongly forward; flowers 1–3 in the axils, pedicelled; tube of the hypanthium villous-tomentose, 6–8 mm. long; limb villous without, puberulent within, together with the sepals 5 mm. wide; sepals triangular, acute; achenes about 8 mm. long; style in fruit 4–5 cm. long.

TYPE LOCALITY: El Capitan Mountains, New Mexico.
DISTRIBUTION: Mountains of New Mexico, Arizona, Chihuahua, and Sonora.
ILLUSTRATIONS: Sargent, Silva *pl. 634;* Sargent, Man. *f. 421;* Britton, N. Am. Trees *f. 371* (all as *C. breviflorus*).

16. **Cercocarpus paucidentatus** (S. Wats.) Britton, Trans. N. Y. Acad. Sci. **14**: 31. 1894.

Cercocarpus parvifolius paucidentatus S. Wats. Proc. Am. Acad. **17**: 353. 1882.
Cercocarpus Treleasei C. K. Schneid. Handb. Laubh. **1**: 530. 1905.

A shrub with gray bark; branches sparsely hirsute, purpurescent; petioles very short, 1–3 mm. long, hirsute; leaf-blades 5–10 mm. long, 2–7 mm. broad, thick, obovate, rounded or emarginate at the apex, cuneate at the base, entire or slightly 2- or 3-toothed at the apex, with slightly revolute margins, dark, loosely hirsute-villous above, white-tomentose and villous-hirsute beneath; flowers solitary or two in the axils, short-pedicelled; tube of the hypanthium white-villous, 6 mm. long, in fruit 8 mm. long; limb together with the sepals 4 mm. broad; anthers hirsute; style in fruit 3–3.5 cm. long.

TYPE LOCALITY: San Miguelito, San Luis Potosi.
DISTRIBUTION: San Luis Potosi and Hidalgo.

17. **Cercocarpus breviflorus** A. Gray, Pl. Wright. **2**: 54. 1853.

Cercocarpus parvifolius breviflorus Coville; M. E. Jones, Zoe **2**: 245. 1891.
Cercocarpus parvifolius brevifolius M. E. Jones; Sargent, Silva **4**: 66. 1892.

A shrub 1–2 m. high, often spiny, with dark-gray, fissured bark; branches strigose-canescent when young, soon glabrous, brown and shining; petioles 1–2 mm. long, strigose; leaf-blades elliptic, mostly entire, acute at both ends, with revolute margins, rarely obscurely denticulate at the apex, grayish-strigose when young, green and glabrate above in age, finely tomentulose beneath, 8–15 mm. long; lateral veins 3 or 4 on each side, prominent beneath; flowers 1 or 2 in the axils, sessile or very short-pedicelled; tube of the hypanthium very short, in fruit only 5–6 mm. long, strigose; limb strigose without, together with the sepals 4 mm. broad; sepals triangular, acute; achenes about 8 mm. long; style in fruit 3 cm. long.

TYPE LOCALITY: Sides of mountains near Frontera, New Mexico [? = Fronteras, Sonora].
DISTRIBUTION: Texas, New Mexico, Arizona, Chihuahua, Coahuila, and Sonora.

18. **Cercocarpus ledifolius** Nutt.; T. & G. Fl. N. Am. **1**: 427. 1840.

Cercocarpus ledifolius intercedens f. *subglabra* C. K. Schneid. Mitt. Deuts. Dendr. Ges. **14**: 128. 1905.

An aromatic tree, sometimes 12 m. high, with trunk up to 7 dm. in diameter, with red-brown, furrowed bark, broken into persistent scales; branches canescent at first, soon glabrous; petioles 3–5 mm. long, short-villous, soon glabrous; leaf-blades narrowly lanceolate, lance-elliptic, or oblanceolate, acute at both ends, entire with revolute margins, villous-puberulent when young, green, shining, and glabrate in age above, resinous, pale or rufous, and tomentulose beneath, 1–3 cm. long, 5–10 cm. broad, persistent; flowers solitary or two, rarely three in the axils, sessile; tube of the hypanthium 5–7 mm. long, white-villous-tomentose; limb turbinate, villous without, glabrous within, together with the sepals 5–6 mm. wide; sepals ovate, acute, tomentose on both sides; achenes about 1 cm. long, hirsute; style in fruit 5–7 cm. long.

TYPE LOCALITY: Rocky Mountains in alpine situations on the summits of the hills of Bear River of Timpanagos [Bear River, Idaho].
DISTRIBUTION: Montana to Colorado, southern California, and Washington.
ILLUSTRATIONS: Hook. Ic. *pl. 324;* Sargent, Silva *pl. 165;* Sargent, Man. *f. 420;* Nutt. Silva **2**: *pl. 51;* Sudw. Forest Trees Pacif. Slope *f. 158;* Britton, N. Am. Trees *f. 372*.

Cercocarpus ledifolius × macrourus. See under *C. macrourus*.
Cercocarpus arizonicus × ledifolius. See under *C. arizonicus*.

19. **Cercocarpus hypoleucus** Rydberg, sp. nov.

Cercocarpus ledifolius intercedens f. *hirsutus* C. K. Schneid. Mitt. Deuts. Dendr. Ges. **14**: 129. 1905.

A shrub or small tree, 1–5 m. high, with ashy bark; young branches white-villous, soon glabrate; petioles 1–2 mm. long, villous; leaf-blades linear-lanceolate or linear-elliptic, acute at both ends, 1–2 cm. long, 3–4 mm. wide, entire, with strongly revolute margins, green above, at first villous, in age glabrate, densely white-villous-tomentose beneath; flowers 1–3 in the axils, sessile; tube of the hypanthium 4–5 mm., in fruit 5–6 mm. long, white-villous; limb turbinate, together with the sepals 4 mm. broad, villous without, glabrous within; sepals ovate; achenes 6 mm. long; style in fruit 4–5 cm. long.

Type collected at Melrose, Montana, July 7, 1895, *Rydberg 2695* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Montana to Wyoming and Oregon.

20. **Cercocarpus arizonicus** M. E. Jones, Zoe **2**: 14. 1891.

Cercocarpus intricatus villosus C. K. Schneid. Mitt. Deuts. Dendr. Ges. **14**: 129. 1905.

An intricately branched, spinose shrub, with ashy bark; young branches white-villous-tomentose; leaves nearly sessile; blades linear, 5–15 mm. long, strongly revolute, villous, canescent on both sides, glabrate above, entire, acute at both ends; flowers solitary; tube of the hypanthium in fruit 6 mm. long, short-villous; achenes 6 mm. long; style very slender, in fruit about 3 mm. long.

TYPE LOCALITY: Willow Spring, Arizona.
DISTRIBUTION: Central Utah to Arizona and Nevada.

Cercocarpus arizonicus × ledifolius. Most resembling *C. arizonicus* in habit, but the leaves broader and less revolute, 1–1.5 cm. long and 2–3 mm. wide. Silver Reef, Utah, May 3, 1894, *M. E. Jones 5149k*, in part, together with *C. arizonicus*.

21. **Cercocarpus intricatus** S. Wats. Proc. Am. Acad. **10**: 346. 1875.

Cercocarpus breviflorus S. Wats. Bot. King's Expl. 83. 1871. Not *C. breviflorus* A. Gray. 1853.
Cercocarpus ledifolius intricatus M. E. Jones, Zoe **2**: 14. 1891.
Cercocarpus intricatus typicus C. K. Schneid. Mitt. Deuts. Dendr. Ges. **14**: 129. 1905.

An intricately branched shrub with fissured ashy bark, more or less spinescent; young branches strigose, soon glabrous; petioles 1–2 mm. long; leaf-blades linear, entire, strongly revolute on the margins, strigose when young, in age glabrate; flowers solitary, subsessile; tube of the hypanthium strigose, 4 mm. long, in fruit 6 mm. long; limb turbinate, together with the sepals 3 mm. wide; sepals ovate, obtuse; achenes about 7 mm. long, hirsute; style in fruit 4–5 cm. long.

TYPE LOCALITY: American Fork Cañon, Utah.
DISTRIBUTION: Utah, Nevada, and Arizona.
ILLUSTRATION: C. K. Schneid. Handb Laubh. **1**: *f. 318 k.*

EXCLUDED SPECIES

Cercocarpus parvifolius minimus C. K. Schneid. Handb. Laubh. **1**: 532. 1905. This, described from a twig without flower or fruit, is not a *Cercocarpus*, but *Sericotheca microphylla* Rydb. (*Holodiscus microphyllus* Rydb.).

Tribe 15. **RUBEAE.** Shrubs, or rarely woody vines or perennial herbs with rootstocks. Leaves alternate, often pinnately or palmately compound, with persistent or caducous stipules. Inflorescence racemose or paniculate, or the flowers rarely solitary. Hypanthium flat or saucer-shaped. Disk on the margin of the hypanthium poorly developed, bearing numerous stamens. Pistils numerous or rarely few, but at least as many as the sepals. Ovules 2, collateral. Fruit of more or less fleshy drupelets. Cotyledons flat.

Flowers of two kinds, the essentially staminate flowers petaliferous, usually with the pistils abortive, the fertile flowers apetalous, and with few stamens; drupelets 5–10, nearly dry; low stoloniferous herbs with simple, reniform leaves. 50. DALIBARDA.
Flowers all petaliferous, in dioecious or polygamo-dioecious species only slightly unlike; drupelets usually many, decidedly pulpy.
  Styles club-shaped; stigmas slightly 2-lobed; receptacle flat; unarmed shrubs with exfoliating bark and simple digitately ribbed and lobed leaves.

Drupelets capped by a hard pubescent cushion; styles glabrous. 51. RUBACER.
Drupelets without cushion; styles hairy. 52. OREOBATUS.
Styles filiform, glabrous; stigmas capitate; receptacle convex, hemispheric, or nipple-shaped; drupelets without cushion; leaves in most species compound and stem prickly or bristly. 53. RUBUS.

50. DALIBARDA L. Sp. Pl. 491. 1753.

Low perennial herbs, with creeping stems. Leaves simple, reniform, crenate, alternate, with narrow stipules. Flowers solitary, slender-pedicelled, of two kinds, the upper petaliferous, long-pedicelled, the lower apetalous, short-pedicelled. Hypanthium of petaliferous flowers saucer-shaped; sepals 5 or 6, imbricate, the outer larger and toothed, stamens 20 or more; filaments filiform; pistils several but usually abortive; petals white. Fertile flowers apetalous; sepals more foliaceous; petals none; stamens fewer; pistils 5–10, but often not all maturing. Drupelets large, enclosed in the sepals, nearly dry. Ovules 2 in each carpel, but only one maturing. Cotyledons flat.

Type species, *Dalibarda repens* L.

1. Dalibarda repens L. Sp. Pl. 491. 1753.

Rubus Dalibarda L. Sp. Pl. ed. 2. 708. 1762.
Dalibarda violaeoides Michx. Fl. Bor. Am. 1: 299. 1803.
Dalibarda cordata Stephan, Mém. Soc. Nat. Mosc. 1: 129. 1806.

Stem herbaceous, creeping, slender, rooting at the nodes, villous, 1–2 cm. long; leaves simple, petioled; stipules free, lanceolate or subulate; leaf-blades reniform, crenate, 2–4 cm. broad, sparingly pubescent on both sides; sepals of the petaliferous flowers about 3 mm. long; petals white, oblong, 5–7 mm. long; sepals of the fertile flowers about 4 mm. long, closing around the fruit; drupelets white, 3–3.5 mm. long, nearly dry, distinct.

TYPE LOCALITY: Canada.
DISTRIBUTION: Woods, from Nova Scotia to New Jersey, Ohio, and Minnesota; North Carolina.
ILLUSTRATIONS: Smith, Pl. Ic. Ined. *pl. 20;* Lam. Tab. Encyc. *pl. 441;* Michx. Fl. Bor. Am. 1: *pl. 27;* Nestler, Monog. Potent. *pl. 1;* Britt. & Brown, Ill. Fl. *f. 1907;* ed. 2, *f. 2306;* Bibl. Bot. 17[72]: *f. 1;* Cycl. Am. Hort. *f. 673.*

51. RUBACER Rydb. Bull. Torrey Club 30: 274. 1903.

Bossekia Neck. Elem. 2: 91, in part; hyponym. 1790.
Bossekia Greene, Leaflets 1: 210. 1906.

Unarmed shrubs, with more or less shreddy bark, more or less glandular-hispid above. Leaves petioled, simple, digitately ribbed and lobed, with acute or acuminate lobes and cordate at the base, resembling the leaves of certain maples. Flowers showy, in small panicles. Sepals 5, ovate with long slender acuminations. Petals 5, pink or white, oval or orbicular. Stamens numerous, in several series; filaments slender; anthers deeply cordate at the base. Pistils numerous; styles glabrous, club-shaped; stigmas slightly 2-lobed. Drupelets numerous, coherent with each other and separating from the flat receptacle, capped with a dry, rather hard, finely and densely pubescent cushion, the style inserted under the margin.

Type species, *Rubus odoratus* L.

Petals rose-colored; middle lobe of the leaves decidedly longer than the rest.
Lobes of the leaves triangular, dentate with broad triangular teeth. 1. *R. odoratum.*
Lobes of the leaves lanceolate, incised-dentate or doubly dentate. 2. *R. Columbianum.*
Petals white; middle lobe of the leaves slightly longer than the lateral ones.
Leaves sparingly pilose; young stems glandular and sometimes puberulent. 3. *R. parviflorum.*
Leaves densely pilose beneath; young stems sparingly glandular and long-pilose; hypanthium hirsute, rarely glandular. 4. *R. tomentosum.*

1. Rubacer odoratum (L.) Rydb. Bull. Torrey Club 30: 274. 1903.

Rubus odoratus L. Sp. Pl. 494. 1753.
Rubus grandifolius Salisb. Prodr. 364. 1796.
Rubus quinquelobus Stokes, Bot. Mat. Med. 3: 142. 1812.
Bossekia odorata Greene, Leaflets 1: 211. 1906.

Stem erect, perennial, 1–1.5 m. high, with flaky bark; young shoots, branches, petioles, and peduncles villous and densely glandular-hispid; stipules lanceolate, somewhat adnate to

the petioles, at last deciduous; leaf-blades broadly cordate in outline, 1–3 dm. broad, green and sparingly pilose on both sides, 3–5-lobed; lobes triangular or ovate, abruptly acuminate, sometimes somewhat caudate, unevenly dentate with ovate-mucronate teeth, the terminal lobe much longer than the rest; inflorescence paniculate with rather large flowers and slender, densely glandular pedicels; sepals broadly ovate, abruptly caudate-acuminate, 1–2 cm. long, densely glandular without, white-tomentose within; petals suborbicular, rose-purple, 15–25 mm. long; fruit depressed-hemispheric, 15–20 mm. broad.

TYPE LOCALITY: Canada.
DISTRIBUTION: Rocky woods, from Nova Scotia to Georgia, Tennessee, and Michigan.
ILLUSTRATIONS: Bot. Mag. *pl. 323;* Audubon, Birds *pl. 123;* Loud. Arb. *f. 463;* Barton, N. Am. Fl. *pl. 42;* Cornuti, Can. Pl. Hist. 150; Nouv. Duham. **6**: *pl. 24;* Britt. & Brown, Ill. Fl. *f. 1890;* ed. 2. *f. 2288;* Card, Bush-Fruits *f. 49;* C. K. Schneid. Handb. Laubh. **1**: *f. 307 c, 308 i–o, 309 g–g';* Bull. Torrey Club **30**: *pl. 13, f. 6.*

2. **Rubacer Columbianum** (Millsp.) Rydb. Bull. Torrey Club **30**: 274. 1903.

Rubus odoratus Columbianus Millsp. Bull. W. Va. Exp. Sta. **2**: 355. 1892.
Rubus Columbianus Rydb. in Britton, Man. 495. 1901.

Stem erect, shrubby, perennial, with flaky bark; young shoots, branches, petioles, and inflorescence more or less glandular-hispid and slightly pilose; stipules lance-subulate, slightly adnate; petioles 1–2 cm. long; leaf-blades reniform or cordate in outline, 3–7-lobed, thin, green and sparingly pilose on both sides, 1–2 dm. broad; lobes lanceolate, acuminate, incised, dentate or double-toothed; teeth triangular, mucronate; inflorescence rather few-flowered; sepals ovate, acuminate, about 1 cm. long, somewhat glandular on the back, white-tomentose within; petals rose-purple, orbicular; fruit like that of *R. odoratum*.

TYPE LOCALITY: Tibbs Run, Monogalia, West Virginia.
DISTRIBUTION: Known only from the type locality.

3. **Rubacer parviflorum** (Nutt.) Rydb. Bull. Torrey Club **30**: 274. 1903.

Rubus parviflorus Nutt. Gen. **1**: 308. 1818.
Rubus nutkanus Moc.; Seringe, in DC. Prodr. **2**: 566. 1825.
Rubus natkanus G. Don, Gen. Hist. 2: 540. 1832.
Rubus nutkanus Nuttallii T. & G. Fl. N. Am. **1**: 450. 1840.
Rubus nutkanus f. *lacera* Kuntze, Meth. Sp. 102. 1879.
Rubus lacer Kuntze, Meth. Sp. 103. 1879.
Bossekia parviflora Greene, Leaflets **1**: 211. 1906.
Rubus nutkanus parviflorus Focke, Bibl. Bot. **17**[72]: 124. 1911.
Rubus nutkanus scopulorum Greene; Focke, Bibl. Bot. **17**[72]: 124. 1911.

Stem erect, shrubby, 5–20 dm. high, with flaky bark; young shoots, branches, petioles, and inflorescence more or less glandular-hispid and often more or less puberulent; stipules lanceolate, siightly adnate; leaf-blades reniform in outline, 5–20 cm. broad, green on both sides, sparingly pilose on both sides, or merely glandular-pruinose beneath, 3–5-lobed, the lobes triangular, acute or slightly acuminate, dentate with ovate, mucronate teeth; inflorescence corymbose-paniculate, 3–10-flowered; sepals broadly ovate, abruptly caudate-acuminate, about 1.5 cm. long, densely glandular on the back, white-tomentose within; petals white, broadly oval, or ovate, 15–30 mm. long; fruit convex, red, 15–20 mm. wide.

TYPE LOCALITY: Island of Michilimackinac, Lake Huron.
DISTRIBUTION: Open woods and among bushes, from Michigan and western Ontario to the Black Hills of South Dakota, New Mexico, northern Mexico, California, and southern Alaska.
ILLUSTRATIONS: Moc. & Sessé, Calq. Dess. *pl. 291;* Loud. Arb. *f. 464;* Bot. Reg. *pl. 1368;* Bot. Mag. *pl. 3453;* Sweet, Brit. Fl. Gard. II. *pl. 83;* Britt. & Brown, Ill. Fl. *f. 1891;* ed. 2. *f. 2289;* Card, Bush-Fruits *f. 50;* C. K. Schneid. Handb. Laubh. **1**: *f. 307 d, 309 d, e.*

4. **Rubacer tomentosum** Rydb. Bull. Torrey Club **30**: 274. 1903.

Rubus velutinus H. & A. Bot. Beech. Voy. 140. 1832. Not *R. velutinus* Vest. 1823.
Rubus nutkanus velutinus Brewer, Bot. Calif. **1**: 172. 1876.
? *Rubus californicus* Kuntze, Meth. Sp. 102. 1879.
Rubus parviflorus velutinus Greene, Bull. Torrey Club **17**: 14. 1890.
Rubacer velutinus Heller, Muhlenbergia **1**: 106. 1904.

Stem erect, 1–2 m. high, with flaky bark; young shoots, branches, petioles, and inflorescence more or less pilose as well as glandular-hispid; stipules lance-subulate; leaf-blades

reniform, or sometimes cordate in outline, 1–2 dm. broad, densely pilose on both sides, especially so beneath; lobes triangular, acute or short-acuminate, dentate with triangular teeth; inflorescence corymbose-paniculate, 2–6-flowered, with short pedicels; sepals ovate, caudate-acuminate, about 15 mm. long, densely pilose but slightly if at all glandular on the back, tomentose within; petals obovate, white, 2–2.5 cm. long; fruit similar to that of the preceding species.

TYPE LOCALITY: San Francisco, California.
DISTRIBUTION: British Columbia to central California, mostly near the coast.

52. **OREOBATUS** Rydb. Bull. Torrey Club **30**: 274. 1903.

Prostrate or reclining or erect shrubs with light-colored shreddy bark. Leaves petioled, simple, maple- or gooseberry-like, digitately ribbed or lobed. Flowers showy, usually solitary. Sepals 5, ovate or ovate-lanceolate, acuminate or with foliaceous tips, in fruit erect. Petals white, pink, or purple, broadly obovate. Stamens very numerous, in several series, hiding the rather few pistils. Receptacle flat or nearly so. Styles club-shaped, densely pubescent curved; stigma somewhat 2-lobed. Drupelets rather few, fleshy, without hairy cushions.

Type species, *Rubus deliciosus* Torr.

Leaves reniform with rounded lobes, glandular-pruinose beneath, merely pubescent on the veins. — 1. *O. deliciosus.*
Leaves cordate-reniform or reniform, with at least the terminal lobe acute, decidedly pubescent beneath.
  Leaves equally light-green on both sides; terminal lobe broadly ovate, usually broader than long.
    Leaves glabrous above, small, usually 3–4 cm. long, not conspicuously reticulate; pubescence of the petioles short and close. — 2. *O. rubicundus.*
    Leaves soft-pubescent on both sides, 4–6.5 cm. long, conspicuously reticulate-veined; pubescence of the petioles loose and spreading. — 3. *O. neomexicanus.*
  Leaves dark-green above, paler beneath; terminal lobe triangular, usually longer than broad. — 4. *O. trilobus.*

1. **Oreobatus deliciosus** (Torr.) Rydb. Bull. Torrey Club **30**: 275. 1903.

Rubus deliciosus Torr. Ann. Lyc. N. Y. **2**: 196. 1827.
Rubus Roezli Regel, Gartenflora **24**: 227. 1875.—Acta Hort. Petrop. **3**: 285. 1875.
Rubus medius Kuntze, Meth. Sp. 102. 1879.
Rubus odoratus deliciosus Kuntze, Rev. Gen. 223. 1891.
Bossekia deliciosa A. Nelson; Coult. & Nelson, Man. 250. 1909.

Stems mostly decumbent or prostrate, or ascending, with branched flaky stems; young branches densely puberulent or pilose, almost velvety; stipules lanceolate, acuminate, 5–8 mm. long; petioles 1–2.5 cm. long, puberulent; leaf-blades reniform in outline, more or less distinctly 3–7-lobed, sparingly pilose above and on the veins beneath, soon glabrate, glandular-pruinose beneath, 2–6 cm. broad; lobes very broad and rounded or on young shoots more acute, irregularly dentate with triangular-mucronate teeth; flowers mostly solitary; sepals 10–15 mm. long, lance-ovate, acuminate or with more or less foliaceous tips, glandular without, somewhat tomentose within; petals oval, white, 1.5–3 cm. long; fruit hemispheric, dark-purple, 10–15 mm. broad; drupelets large, few, distinct; receptacle dry, small.

TYPE LOCALITY: Rocky Mountains [Colorado].
DISTRIBUTION: Mountains of Colorado.
ILLUSTRATIONS: Bot. Mag. *pl. 6062;* Bibl. Bot. **17**[72]: *f. 54;* C. K. Schneid. Handb. Laubh. **1**: *f. 309 a–c*[2]; Bull. Torrey Club **30**: *pl. 13, f. 7;* Gartenflora **24**: *pl. 837, f. 2.*

2. **Oreobatus rubicundus** Wooton & Standley, Contr. U. S. Nat. Herb. **16**: 130. 1913.

Stem about 1 m. high, with spreading branches, with soon exfoliating bark; young branches reddish, very finely pubescent; petioles finely pubescent, not exceeding the blades; leaf-blades 3–4 cm. long, about as wide, rounded-ovate in outline, cordate or truncate at the base, conspicuously 3-lobed, glabrous above, or nearly so, sparingly pubescent beneath on the veins; lobes obtuse, or the terminal one acute, crenate-dentate with ovate teeth; peduncles solitary, 5–15 mm. long, finely pubescent and glandular; sepals lanceolate, acuminate, in flower 10

mm. long, becoming at last about 15 mm. long, finely pubescent on both surfaces; petals white, 10–15 mm. long, broadly oblong; fruit small, with few, nearly dry drupelets.

TYPE LOCALITY: Van Pattens Camp, Organ Mountains, New Mexico.
DISTRIBUTION: Organ Mountains, New Mexico.

3. **Oreobatus neomexicanus** (A. Gray) Rydb. Bull. Torrey Club **30**: 275. 1903.

Rubus neomexicanus A. Gray, Pl. Wright. **2**: 55. 1853.
? *Rubus rubriflorus* Kuntze, Meth. Sp. 102. 1879.
Rubus deliciosus neomexicanus Kearney, Trans. N. Y. Acad. **14**: 32. 1895.

Stem much branched, 1–3 m. high, perennial, with flaky bark; twigs, petioles, and inflorescence puberulent or pilose; stipules lanceolate, nearly free; petioles 1–3 cm. long; leaf-blades cordate-reniform, 3–9 cm. broad, green and pilose on both sides, 3–5-lobed, the lobes triangular-ovate, again somewhat lobed or double-toothed, at least the terminal one acute; teeth broadly ovate, mucronate; inflorescence 1- or 2-flowered; sepals ovate, caudate-acuminate, 15–20 mm. long, pilose and glandular on the back, tomentose within; petals white, 2–2.5 cm. long, round-obovate; fruit hermispheric, about 15 mm. broad, red; drupelets more numerous than in *O. deliciosus*.

TYPE LOCALITY: "Copper Mines" [Santa Rita], New Mexico.
DISTRIBUTION: Mountains of New Mexico, Arizona, and Sonora.
ILLUSTRATIONS: Card, Bush-Fruits *f. 51;* C. K. Schneid. Handb. Laubh. **1**: *f. 307 b* (both as *Rubus deliciosus*).

4. **Oreobatus trilobus** (Seringe) Rydberg.

Rubus trilobus Seringe, in DC. Prodr. **2**: 566. 1825.
Rubus mexicanus Kuntze, Meth. Sp. 102. 1879.
Rubus trilobus guatemalensis Focke, Bot. Gaz. **18**: 201. 1893.

Stem erect, often purplish, flaky; branches, petioles, and peduncles puberulent or pilose; stipules narrowly linear-lanceolate; petioles about 2 cm. long; leaf-blades cordate in outline-3-lobed, rather firm, dark-green above, paler beneath, densely pilose on both sides; lobes triangular, acute, the median one much longer than the rest, all unevenly and finely serrate with lanceolate teeth; flowers mostly solitary; sepals ovate, caudate-acuminate, about 1.5 cm. long, densely pilose without, tomentose within, in fruit often purplish and closing around the fruit; petals rounded-oval, about 2 cm. long; fruit hemispheric, purple, about 15 mm. broad; drupelets very large, distinct.

TYPE LOCALITY: Mexico.
DISTRIBUTION: Southern Mexico to Guatemala.
ILLUSTRATIONS: Bibl. Bot. **17**[72]: *f. 55;* Moc. & Sessé, Calq. Dess. *pl. 290.*

53. **RUBUS** (Tourn.) L. Sp. Pl. 492. 1753.

Bossekia Neck. Elem. **2**: 91, in part; hyponym. 1790.
Cylactis Raf. Jour. de Phys. **89**: 97. 1819.
Dyctisperma Raf. Sylva Tell. 159. 1838.
Cylastis Raf. Sylva Tell. 160. 1838.
Selnorition Raf. Sylva Tell. 160. 1838.
Cumbata Raf. Sylva Tell. 160. 1838.
Ampomele Raf. Sylva Tell. 160. 1838.
Ametron Raf. Sylva Tell. 160. 1838.
Manteia Raf. Sylva Tell. 161. 1838.
Batidaea Greene, Leaflets **1**: 238. 1906.
Melanobatus Greene, Leaflets **1**: 243. 1906.
Parmena Greene, Leaflets **1**: 244. 1906.
Cardiobatus Greene, Leaflets **1**: 244. 1906.
Psychrobatia Greene, Leaflets **1**: 245. 1906.
Comarobatia Greene, Leaflets **1**: 245. 1906.
Chamaemorus (Clusius) Greene, Leaflets **1**: 245. 1906

Perennial plants of various habit, most of them shrubs or shrubby vines, a few herbaceous with rootstocks or creeping stems; the shrubby ones mostly armed with prickles or bristles, the herbaceous ones mostly unarmed; the shrubby ones of temperate regions mostly with biennial stems, the stems the first season (the *turions*, called by the horticulturalists "new canes") usually bearing 5-foliolate leaves, the second season sending out floral branches with mostly 3-foliolate leaves, and bearing flowers and fruits, the stems thereafter dying down, and new turions, in the meantime, being produced from the base of the plant; those of tropical regions

often with perennial stems and persistent leaves. Leaves alternate, petioled, with stipules, most commonly palmately or pinnately compound, but in some species simple. Flowers racemose or paniculate, or sometimes solitary, usually hermaphrodite, rarely dioecious or polygamo-dioecious. Hypanthium short, plane and rotate, or saucer-shaped, hemispheric, or turbinate. Sepals 5, rarely 6–8, without bractlets, usually valvate. Petals as many, deciduous or rarely marcescent. Stamens numerous, inserted on a more or less distinct disk at the margin of the hypanthium; filaments incurved in bud, erect or spreading in anthesis. Pistils numerous, inserted on a convex, hemispheric, or nipple-shaped, dry or fleshy receptacle. Drupelets fleshy, sometimes coalescent and falling off from the dry receptacle as a thimble or cap (as in the raspberries), sometimes coalescent with each other and the fleshy receptacle and falling off together with the same (as in the blackberries and dewberries); sometimes distinct and falling off separately (in some tropical species), or remaining on the receptacle until decayed. Ovules 2, collateral, one of them abortive.

Type species, *Rubus idaeus* L.

Stem herbaceous, never prickly, rarely bristly; floral branches directly from the rootstock or from stolons; stipules broad, free or nearly so.
- Petals spreading or ascending; filaments not dilated.
  - Plants dioecious; floral branches directly from the rootstock, not stoloniferous; drupelets many, coherent; petals large and broad. (§ CHAMAEMORUS.) — I. CHAMAEMORI.
  - Plants with perfect flowers, stoloniferous; drupelets few, distinct; petals narrow.
    - Leaves ternate or simple; drupelets pubescent, sessile. (§ COMAROBATUS.) — II. LASIOCOCCI.
    - Leaves pedately 5-foliolate; drupelets glabrous, substipitate. (§ PSYCHROBATIA.) — III. PEDATI.
- Petals erect; filaments dilated. (§ CYLACTIS.)
  - Petals pink or rose-colored; plants not stoloniferous; floral branches directly from the rootstock. — IV. ARCTICI.
  - Petals white; plants stoloniferous. — V. SAXATILE.

Stem more or less woody, biennial or perennial, usually prickly, if unarmed or merely bristly, the stipules narrow and more or less adnate.
- Stipules broad, free or nearly so. (§ CHAMAEBATUS.) — VI. GLABRATI
- Stipules narrow, linear-lanceolate or subulate, more or less adnate to the petioles.
  - Carpels united into a thimble-shaped aggregate fruit, falling off from the dry receptacle. (§ IDEOBATUS.)
    - Flowers solitary or few, large; petals large, much exceeding the sepals; leaves neither tomentose nor pale beneath. — VII. ROSAEFOLII
    - Flowers clustered (except in *R. Pringlei*); petals usually shorter than the sepals, or at most only slightly exceeding them; leaves mostly white-tomentose or sometimes merely glaucous beneath. — VIII. IDAEI.
  - Carpels remaining on the fleshy receptacle, or falling off together with the same, or falling off separately.
    - Tropical species with perennial stems and finely and closely toothed leaves, often evergreen, very rarely with prostrate stolons.
      - Drupelets united with the fleshy receptacle, or if falling off separately, then numerous. (§ ANABATUS.)
        - Stem and petioles densely hispid with long glandless bristles. — IX. URTICIFOLII.
        - Stem and petioles not hispid, or the bristles gland-tipped.
          - Stem more or less glandular. — X. ADENOTRICHI
          - Stem and petioles not glandular; only the inflorescence rarely somewhat glandular.
            - Stem not climbing or trailing; inflorescence rarely prickly. — XI. FLORIBUNDI.
            - Stem climbing or trailing; inflorescence decidedly prickly.
              - Inflorescence leafy; Mexican and Central American species. — XII. SAPIDI.
              - Inflorescence usually naked; West Indian species. — XIII. DURI.
      - Drupelets few, falling off separately; plants climbing, with evergreen leaves and inflorescence of many virgate branches. (§ LAMPROBATUS.) — XIV. SCANDENTES.
    - Temperate species with biennial stems, and coarsely toothed, mostly deciduous leaves, or if the leaves are persistent (in *Triviales* and *Hispidi*), then the plant with prostrate stolons. (§ EUBATUS.)
      - Dioecious species of the Pacific coast, with decumbent stems and 1–3-foliolate leaves. — XV. URSINI

Hermaphrodite species, natives of eastern United States and Mexico, or a few introduced ones from the Old World.
Turions erect; stems in age erect, or arching or recurved, rarely prostrate in age.
Stems prickly or rarely unarmed; prickles comparatively few, usually stout, confined to the angles of the stem.
Leaflets laciniate. XVI. LACINIATI.
Leaflets not laciniate.
Leaves white-tomentose beneath. XVII. DISCOLORES.
Leaves not white-tomentose beneath. XVIII. ARGUTI.
Stems bristly; bristles or weak prickles not confined to the angles of the stem, usually numerous.
Stems prickly as well as bristly (hybrids between the *Arguti* and the *Hispidi* groups).
Stems merely bristly. XX. HISPIDI.
Turions and stems prostrate; only the floral branches erect.
Inflorescence not prickly; leaves not persistent, except in *R. hispidus*, in which the leaflets are obovate.
Stems prickly; prickles confined to the angles of the stems. XIX. PROCUMBENTES.
Stems with usually numerous bristles, not confined to the angles. XX. HISPIDI.
Inflorescence with flattened prickles; leaves persistent; leaflets oblanceolate or elliptic. XXI. TRIVIALES.

I. CHAMAEMORI

One species. 1. *R. Chamaemorus*.

II. LASIOCOCCI

One species. 2. *R. lasiococcus*.

III. PEDATI

One species. 3. *R. pedatus*.

IV. ARCTICI

Leaves simple or more or less 3-lobed or 3-cleft. 4. *R. stellatus*.
Leaves 3-foliolate.
Petals oblanceolate or obovate, 10–15 mm. long, distinctly clawed; stem usually less than 1 dm. high, with few stem-leaves, usually 1-flowered; leaflets all rounded at the apex. 5. *R. acaulis*.
Petals broadly obovate, rounded or emarginate at the apex, scarcely clawed, 10 mm. long or less; stem leafy, 1–3 dm. high, 1–3-flowered; leaflets of the stem-leaves usually rhombic and acute. 6. *R. arcticus*

V. SAXATILES

Flowers in short-peduncled umbel-like clusters; plant somewhat bristly, especially in the inflorescence; drupelets 5–6. 7. *R. saxatilis*.
Flowers 1–4, racemosely or corymbosely arranged; drupelets 12–50.
Plant sparingly glandular-hispid above and sometimes with a few weak bristles; flowers corymbose. 8. *R. transmontanus*.
Plant wholly unarmed; flowers solitary or racemose. 9. *R. pubescens*.

VI. GLABRATI

Petals white, oblanceolate to elliptic.
Leaves cordate in outline, 3-lobed or rarely trifoliolate; carpels few; stamens about 15; petals oblanceolate. 10. *R. nivalis*.
Leaves reniform in outline, indistinctly several-lobed; carpels and stamens many; petals elliptic. 11. *R. pumilus*.
Petals rose-colored, suborbicular; leaves mostly trifoliolate; stamens and pistils numerous. 12. *R. glabratus*.

VII. ROSAEFOLII

Petals rose-colored or purplish; upper leaves at least ternate; stem unarmed or nearly so.
Leaves sparingly pubescent on both sides or glabrate. 13. *R. spectabilis*.
Leaves densely and finely pilose beneath. 14. *R. franciscanus*.
Petals white; leaves all 5–15-foliolate. 15. *R. rosaefolius*.

VIII. IDAEI

Petals rose or purple, incumbent, appressed to the stamens; stem densely hispid but not glandular. 16. *R. phoenicolasius*.
Petals white, erect or ascending.
Stem densely hispid, but not at all glandular; leaves subcoriaceous. 17. *R. ellipticus*.
Stem, if densely hispid, more or less glandular.
Inflorescence corymbiform; fruit black or purple; stem prickly; leaves, when having more than three leaflets, pedately compound.

Fruit oblong; sepals reflexed in fruit; larger leaflets with 10–15 lateral veins on each side.
Leaves glabrate above; fruit 8–15 mm. in diameter. 18. *R. glaucus.*
Leaves puberulent above; fruit 6–8 mm. in diameter. 19. *R. eriocarpus.*
Fruit hemispheric; sepals enclosing the fruit or merely spreading; larger leaflets with 6–8 lateral veins on each side.
Flowers solitary or rarely 2 or 3; sepals broadly ovate, abruptly caudate-acuminate; petals equaling the sepals. 20. *R. Pringlei.*
Flowers in corymbs or small panicles; sepals lanceolate, gradually acuminate; petals shorter than the sepals.
Leaves white-tomentose beneath.
Inflorescence not glandular-hispid.
Prickles of the inflorescence scarcely flattened, nearly straight; leaflets dark-green above, abruptly acuminate, with small teeth; stem and branches usually dark bluish-green or purplish, with a bloom. 21. *R. occidentalis.*
Prickles of the inflorescence strongly laterally flattened and strongly curved; leaflets yellowish-green above, acute or gradually short-acuminate, with coarse teeth; branches often yellowish. 22. *R. leucodermis.*
Inflorescence or hypanthium, or both, glandular-hispid.
Sepals spreading or somewhat reflexed. (See hybrids of *R. leucodermis* and *R. occidentalis* with *R. strigosus* and its relatives.)
Sepals appressed to and enclosing the fruit.
Prickles strong, laterally flattened and strongly curved; sepals with long tips. 23. *R. bernardinus.*
Prickles few, weak, nearly terete and nearly straight; sepals short-acuminate. 24. *R. glaucifolius.*
Leaves green and glabrous beneath. 25. *R. nigerrimus.*
Inflorescence racemose; fruit red; leaves, when having more than 3 leaflets, pinnately compound.
Plant not at all glandular-hispid.
Young branches, petioles, and inflorescence finely tomentose. 26. *R. idaeus.*
Young branches, petioles, and inflorescence sparingly pilose or glabrate. 27. *R. melanotrachys.*
Plant more or less glandular-hispid, especially in the inflorescence.
Leaves of the floral branches mostly 3–5-foliolate, with acute or acuminate leaflets; sepals caudate-acuminate.
Leaves of the floral branches, at least some of them, 5-foliolate. 28. *R. arizonicus.*
Leaves of the floral branches normally 3-foliolate.
Sepals narrowly lanceolate, gradually acuminate.
Leaves light-green above, glabrate beneath in age, only slightly tomentulose when young.
Stem sparingly bristly; leaves neither strongly plicate, nor strongly veined. 29. *R. peramoenus.*
Stem densely bristly; leaves strongly veined and strongly plicate. 30. *R. viburnifolius.*
Leaves dark-green above, usually densely white-tomentose beneath.
Young stems puberulent and densely retrorsely glandular-hispid. 31. *R. carolinianus.*
Young stems not puberulent, sparingly bristly. 32. *R. strigosus.*
Sepals ovate or ovate-lanceolate, abruptly acuminate (less conspicuously so in *R. strigosus*).
Young stems, petioles, and inflorescence neither densely tomentose nor puberulent.
New stems usually sparingly bristly, scarcely glandular, in age remaining dark; bristles slender; leaves dark-green above. 32. *R. strigosus.*
New stems densely bristly, sometimes somewhat prickly, more or less glandular, in age often straw-colored; leaves light-green above. 33. *R. melanolasius.*
Young stems, petioles and inflorescence densely tomentose or puberulent, as well as densely bristly.
Leaves dark-green above; bristles all slender and terete. 34. *R. subarcticus.*
Leaves yellowish or pale above; stronger bristles often more or less flattened. 35. *R. acalyphaceus.*
Leaves of the floral branches mostly simple, reniform, more or less rounded 3-lobed; sepals obtuse or merely mucronate. 36. *R. Egglestonii.*

IX. URTICIFOLII

Leaflets densely hairy above; bracts ovate or ovate-lanceolate; branches of the panicle ascending. 37. *R. trichomallus.*

Leaflets sparingly pubescent above, in age glabrate; bracts linear-lanceolate to setaceous; branches of the inflorescence spreading. 38. *R. ferrugineus.*

X. ADENOTRICHI

Drupelets 10–20, large, glabrous; leaflets broadly ovate, coriaceous; flowers panicled. 39. *R. costaricanus.*
Drupelets small, numerous; leaflets not very broadly ovate.
Leaflets double-toothed; teeth lanceolate, directed forward; inflorescence paniculate.
Leaves sparingly hairy or glabrate beneath. 40. *R. Verae-Crucis.*
Leaves densely pubescent, almost velutinous beneath.
Glandular bristles long, 2–5 mm.; drupelets glabrous. 41. *R. adenotrichos.*
Glandular bristles short, rarely more than 1 mm. long; drupelets sparingly hairy at the apex. 42. *R. irasuensis.*
Leaflets simple-toothed; teeth very short and salient; inflorescence racemose. 43. *R. miser.*

XI. FLORIBUNDI

Drupelets pubescent; inflorescence decidedly prickly.
Leaflets broad, cordate at the base, softly pubescent on both sides. 44. *R. philyrophyllus.*
Leaflets oval, not cordate at the base, green and sparingly pubescent on both sides. 45. *R. Liebmannii.*
Drupelets glabrous; inflorescence slightly if at all prickly.
Petals at least twice as long as the sepals; leaves coriaceous.
Leaves densely pubescent, at least beneath.
Leaflets closely serrate, with numerous sharp lanceolate teeth; drupelets few, falling off separately. 46. *R. coriifolius.*
Leaflets dentate, with small or obsolete rather distant teeth; drupelets numerous. 47. *R. Schiedeanus.*
Leaves glabrous on both sides, except the veins beneath. 48. *R. superbus.*
Petals slightly if at all exceeding the sepals.
Leaflets densely pubescent, at least beneath.
Leaflets regularly toothed with rather short teeth, never cordate at the base.
Inflorescence glandular, as well as tomentose; leaflets pilose above. 49. *R. macrogongylus.*
Inflorescence not glandular; leaflets finely pubescent with branched hairs above. 50. *R. Smithii.*
Leaflets densely and irregularly or doubly serrate with lanceolate teeth directed decidedly forward.
Inflorescence decidedly glandular as well as pubescent; sepals ovate or lanceolate, apiculate.
Branches and petioles short-hairy; inflorescence rather lax, rarely prickly. 51. *R. Uhdeanus.*
Branches and petioles densely villous; inflorescence dense and decidedly prickly. 52. *R. Pittieri.*
Inflorescence very sparingly if at all glandular.
Sepals ovate, acute or obtusish or apiculate; leaves not white, merely grayish beneath.
Inflorescence dense with ascending, stout, short branches; flowers middle-sized; sepals 6–7 mm. long; leaflets broadly and deeply cordate at the base. 53. *R. abundus.*
Inflorescence lax with diverging branches; flowers small; sepals about 5 mm. long; leaflets lance-elliptic, slightly if at all cordate at the base. 54. *R. laxus.*
Sepals lanceolate, gradually acuminate; leaves usually white beneath. 55. *R. jamaicensis.*
Leaflets not densely pubescent beneath, usually glabrate except the veins.
Leaves ternate; petals white. 56. *R. alpinus.*
Leaves mostly quinate; petals pink. 57. *R. vulcanicola.*

XII. SAPIDI

Leaflets acuminate or sometimes acute at the apex.
Petals more than 1 cm. long.
Leaflets lance-ovate, long-acuminate. 58. *R. Nelsonii.*
Leaflets broadly ovate, or the terminal one subcordate, abruptly short-acuminate or acute.
Stem terete; petals elliptic; teeth of the leaflets broadly ovate; terminal leaflet rarely cordate. 59. *R. amplior.*
Stem angled; petals rounded-obovate or broadly oval; terminal leaflet often subcordate.
Teeth of the leaflets broadly ovate; inflorescence more or less glandular. 60. *R. Palmeri.*
Teeth of the leaflets lanceolate, strongly directed forward; inflorescence not glandular. 61. *R. sapidus.*
Petals about 8 mm. long.

Inflorescence open; leaflets regularly dentate; sepals lanceolate, acuminate. 62. *R. Tuerckheimii.*
Inflorescence dense; leaflets closely and irregularly or doubly serrate with lanceolate teeth directed forward. 52. *R. Pittieri.*
Leaflets rounded or obtuse, rarely acute at the apex, dark-green. 63. *R. alnifolius.*

XIII. DURI

Prickles of the branches and peduncles strongly compressed, recurved; sepals reflexed; leaflets finely and remotely serrulate, or subentire.
Panicle narrow; petals scarcely equaling the sepals; drupelets pubescent; leaflets ovate-elliptic or ovate-lanceolate, glabrous or nearly so beneath, mucronate-serrate. 64. *R. durus.*
Panicle lax; petals much exceeding the sepals; drupelets glabrous; leaflets ovate-cordate or rounded-ovate.
Leaflets glabrous beneath or with a few hairs along the veins, very shining above. 65. *R. florulentus.*
Leaflets velutinous-hirsutulous beneath, not very shining above. 66. *R. Eggersii.*
Prickles of the branches and the peduncles straight or nearly so, spreading; sepals spreading after anthesis; drupelets pubescent; leaflets coarsely serrate. 67. *R. domingensis.*

XIV. SCANDENTES

High-climbing vines; floral branches unarmed and not glandular; sepals obtuse.
Stems tomentose, unarmed; leaflets stellate-puberulent above, velutinous-tomentose beneath. 68. *R. scandens.*
Stems inconspicuously pilose, prickly; leaflets glabrous above, puberulent on the veins beneath. 69. *R. fagifolius.*
Usually erect shrubs; floral branches more or less prickly; sepals acuminate or at least acute; sterile shoots tomentose, minutely prickly; leaves pubescent above, tomentose-villous beneath.
Drupelets few; teeth of the leaflets numerous, sharp lanceolate. 46. *R. coriifolius.*
Drupelets many; teeth of the leaflets minute and more distant, or obsolete. 47. *R. Schiedeanus.*

XV. URSINI

Fruit pubescent.
Leaves densely pubescent beneath, when young almost tomentose; stem densely pubescent. 70. *R. ursinus.*
Leaves sparingly pubescent on both sides, in age glabrate; stem sparingly hirsute or pilose.
Inflorescence scarcely glandular; fruit much longer than broad; stem hirsute; leaves equally green on both sides. 71. *R. vitifolius.*
Inflorescence densely glandular; fruit slightly if at all longer than broad; stem finely pilose; leaves darker above. 72. *R. Helleri.*
Fruit glabrous.
Fruit twice as long as broad; terminal leaflet mostly rhombic-ovate, acutish at both ends, with broad and short teeth. 73. *R. Eastwoodianus.*
Fruit slightly longer than broad; terminal leaflet broadly ovate, rounded or cordate at the base, incised with lanceolate teeth. 74. *R. macropetalus.*

XVI. LACINIATI

One species. 75. *R. laciniatus.*

XVII. DISCOLORES

Leaflets elliptic to oval, acute or acuminate, more or less double-toothed; flowers paniculate, with us usually more or less double. 76. *R. Linkianus.*
Leaflets small, obovate or cuneate at the base; inflorescence corymbiform, 3–7-flowered. 77. *R. cuneifolius.*

XVIII. ARGUTI

Inflorescence densely glandular with long-stipitate hairs.
Sepals ovate, abruptly acuminate; stems strongly angled.
Inflorescence corymbose; terminal leaflets of the turions very broadly cordate, rather gradually acuminate. 78. *R. sativus.*
Inflorescence usually elongate-racemiform; terminal leaflets of the turions elongate-cordate or ovate, abruptly caudate-acuminate. 79. *R. nigrobaccus.*
Sepals lanceolate, long-acuminate; stems slender, terete; leaflets lance-ovate. 80. *R. allegheniensis.*
Inflorescence not at all glandular or but slightly so; glands, if present, sessile or short-stipitate, mostly hidden by the other pubescence.
Leaves densely pubescent beneath.
Inflorescence elongate-racemose; young branches more or less distinctly angled; prickles stout; leaflets never broadly cordate, coarsely pubescent beneath.
Stem very prickly, much branched; prickles of the stem long and straight, those of the inflorescence often curved. 81. *R. argutus.*
Stem sparingly prickly; prickles short and straight; inflorescence usually unarmed. 87. *R. pergratus.*
Inflorescence short, corymbiform; young branches terete.

Plant tall; young branches densely pubescent, almost velvety; inflorescence several-flowered.
Prickles, at least on the branchlets and petioles, curved and flattened; terminal leaflets of the turions not broadly cordate; leaflets very finely pubescent beneath. 82. *R. floridus.*
Prickles straight, terete, not flattened; terminal leaflets of the turions broadly cordate; leaflets rather coarsely pubescent beneath.
Leaflets on the floral branches short, merely acute, with short broad teeth; stem rarely recurved or rooting. 84. *R. frondosus.*
Leaflets on the floral branches usually acuminate, incised-serrate, with lanceolate teeth; stems often recurved and rooting at the tips. 85. *R. recurvans.*
Plant low, 2–4 dm. high, erect; young branches sparingly hairy; inflorescence 1–3-flowered, rarely 4–6-flowered. 86. *R. Brainerdi.*
Leaves essentially glabrous beneath, or sparingly pubescent on the veins.
Stems erect or arching, but not rooting at the tips.
Prickles strongly hooked and flattened at least on the floral branches. 83. *R. betulifolius.*
Prickles, if any, straight and terete.
Stem stout, usually 1–5 m. high, angled.
Stem tall, unarmed, or with few short prickles.
Leaflets all acute or rounded at the base, firm, shiny above, gradually acuminate; the lateral ones of the turions short-petioluled or subsessile. 88. *R. amicalis.*
Leaflets, at least the terminal ones of the turions, cordate or subcordate at the base, very abruptly caudate-acuminate, distinctly petioluled. 89. *R. canadensis.*
Stem less tall, slender, with numerous slender, often somewhat retrorse prickles. 90. *R. elegantulus.*
Stem slender, less than 1 m. high, almost herbaceous, terete or nearly so, unarmed or with a few bristle-like prickles.
Flowers racemose, though few. 91. *R. Randii.*
Flowers solitary, or rarely 2 or 3, leafy-bracted. (Erect forms of) 103. *R. Enslenii.*
Stems recurved and often rooting at the tips. (Hybrids of this group with the *Procumbentes*.)

XIX. PROCUMBENTES

Leaves decidedly pubescent beneath.
Prickles strongly flattened and curved; leaves thick (except in *R. rhodophyllus*).
Fruit sparingly pilose. 92. *R. cymosus.*
Fruit glabrous.
Pedicels strongly prickly; leaflets of the floral branches acute or acuminate.
Stem stout and angled, reclining; floral branches 1–3 dm. long. (See species of the *Sapidi*.)
Stem slender, prostrate; floral branches 2–7 cm. long. 93. *R. oligospermus.*
Pedicels scarcely prickly; leaflets of the floral branches obtusish. 94. *R. rhodophyllus.*
Prickles terete or nearly so, rather weak; leaves thin (less so in *R. arenicola*).
Inflorescence conspicuously leafy-bracted, with unifoliolate leaves broadly ovate or cordate; terminal leaflets of the turions cordate at the base.
Leaflets firm and light-green, shining above, regularly toothed; inflorescence 1–4-flowered, with scattered glands. 95. *R. invisus.*
Leaflets dark-green above, irregularly toothed.
Leaflets very thin; inflorescence 1–3-flowered (rarely 4- or 5-flowered), usually with scattered, stalked or sessile glands. 96. *R. Baileyanus.*
Leaflets thicker, small; inflorescence several-flowered; pedicels somewhat prickly, but not glandular. 97. *R. arenicola.*
Inflorescence not conspicuously leafy-bracted; unifoliolate leaves, if any, cuneate at the base; terminal leaflets of the turions ovate or lanceolate.
Leaflets more or less plicate, sharply serrate with lanceolate teeth; those of the turions abruptly long-acuminate. 98. *R. plicatifolius.*
Leaflets not plicate, with broad ovate teeth; those of the turions acute. 99. *R. aboriginum.*
Leaves glabrous or nearly so, except on the veins beneath.
Leaflets, at least those of the turions, coarsely and incisedly dentate, or even lobed, pale-green. 100. *R. heterophyllus.*
Leaflets more regularly serrate.
Petals 1 cm. long or longer, elliptic or obovate (North American species).
Leaflets of the floral branches sharply serrate, with lanceolate teeth, firm, at least in age; stem strong and rather strongly prickly.
Leaflets thick, dark-green, dull, those of the turions rounded-ovate; inflorescence corymbose, its leaves often unifoliolate, broad; drupelets few. 101. *R. flagellaris.*

Leaflets light-green, shining above, those of the turions ovate or rhombic-ovate; leaves or leaflets of the 1–few-flowered inflorescence similar to those of the rest of the branches; drupelets usually many. 102. *R. procumbens.*
Leaflets of the floral branches crenate-serrate, with ovate teeth, thin and soft; stem slender, weakly prickly, at first sometimes erect. 103. *R. Enslenii.*
Petals 7–8 mm. long, broadly oval (Mexican species). 104. *R. humistratus.*

XX. HISPIDI

Stem at first erect or ascending; leaflets of the turions oblanceolate or lanceolate, acute or acuminate at the apex, not evergreen.
Calyx and pedicels usually with many and gland-tipped bristles.
Inflorescence corymbiform, short and broad, often compound; leaflets rather firm in age. 105. *R. nigricans.*
Inflorescence racemiform, simple; leaflets thin and soft. 106. *R. setosus.*
Calyx not glandular-hispid; pedicels rarely slightly so; inflorescence racemiform. 107. *R. vermontanus.*
Stem prostrate from the beginning; leaflets of the turions obovate, usually obtuse or rounded at the apex, more or less persistent and evergreen. 108. *R. hispidus.*

XXI. TRIVIALES

Leaflets of the turions ovate or lanceolate, more or less acuminate, simply serrate, with triangular-lanceolate teeth.
Stem decidedly prickly, but not at all bristly; inflorescence usually several-flowered. 109. *R. lucidus.*
Stem usually bristly as well as prickly; flowers mostly solitary. 110. *R. trivialis.*
Leaflets of the turions elliptic or oval, distinctly double-toothed, with ovate teeth; stem bristly and prickly.
Leaflets comparatively thin, those of the turions obtuse or acute. 111. *R. carpinifolius.*
Leaflets firm and thick, those of the turions short-acuminate. 112. *R. rubrisetus.*

I. **Chamaemori.** Herbaceous, unarmed, dioecious plants; floral branches directly from the creeping rootstock; leaves simple; blades reniform, more or less lobed; stipules broad, free; petals broad, spreading or ascending; filaments not dilated; fruit yellow or golden, pulpy; drupelets large, coherent; putamen smooth.

1. **Rubus Chamaemorus** L. Sp. Pl. 494. 1753.

Rubus nubis S. F. Gray, Nat. Arr. Brit. Pl. 2: 585. 1821.
Chamaemorus norwegica Greene, Leaflets 1: 245. 1906.

A herbaceous subdioecious perennial, with creeping rootstock; stems erect, 1–3 dm. high, finely puberulent and sometimes glandular on the upper part, with scattered scales below, 1–3-leaved and somewhat zig-zag above; stipules broadly ovate, obtuse or acute, finely puberulent and often glandular, 3–5 mm. long; petioles 1–6 cm. long; leaf-blades reniform, 2–6 cm. long, 3–10 cm. broad, with 3–7 rounded lobes, sparingly hairy or glabrate on both sides, palmately veined, somewhat rugose and at first strongly folded; flowers solitary at the end of the stems; sepals ovate, acute, pubescent, 6–10 mm. long, becoming somewhat longer and closing around the fruit; petals white, obovate, 8–12 mm. long, ascending or spreading; stamens numerous, in the pistillate flowers without anthers; pistils 15–20, in the staminate flowers abortive; styles in the pistillate flowers long, filiform, in the staminate ones short; fruit spheric, at first red, when ripe yellow or golden, pulpy; drupelets large, coherent; putamen about 4 mm. long, 3 mm. broad, smooth.

TYPE LOCALITY: Sweden, in wet swamps.

DISTRIBUTION: Arctic and subarctic America, from Greenland to New Hampshire, British Columbia, and Alaska; Montauk Point, Long Island, New York; also in northern Europe and Asia; circumpolar.

ILLUSTRATIONS: L. Fl. Lapp. *pl. 5, f. 1;* Audubon, Birds *pl. 193;* Fl. Dan. *pl. 1;* Sv. Bot. *pl. 469;* Weihe & Nees, Deuts. Bromb. *pl. 49;* Engl. Bot. *pl. 716;* Fl. Deuts. ed. 5. *pl. 2573;* Britt. & Brown, Ill. Fl. *f. 1892;* ed. 2. *f. 2290;* Card, Bush-Fruits *f. 52;* Cycl. Am. Hort. *f. 2192;* Bild. Nord. Fl. *pl. 311.*

II. **Lasiococci.** Herbaceous, unarmed, hermaphrodite perennials, with decumbent and creeping stems; leaves ternate or simple; stipules large, elliptic, scarious; petals broad, spreading, white; filaments not dilated; fruit greenish-yellow or rose-colored; drupelets pubescent, few, large, sessile; putamen smooth.

2. **Rubus lasiococcus** A. Gray, Proc. Am. Acad. 17: 201. 1882.

Comarobatia lasiococca Greene, Leaflets 1: 245. 1906.

An unarmed perennial, with slender, creeping, finely pubescent stems 1–5 dm. long, rooting at the nodes; flowering branches ascending, sometimes 1 dm. long, 1–3-leaved, 1–2-flowered; leaves simple or ternate; stipules elliptic, subscarious, obtuse, about 5 mm. long; petioles 3–6 cm. long, finely pubescent; blades reniform in outline, 3–6 cm. broad, serrate-dentate, sparingly strigose above, pilose on the veins beneath, 3–5-lobed, -cleft, or -divided, with rounded divisions or sometimes ternate, the middle leaflet then obovate or obovate-cuneate, the lateral ones obliquely ovate; pedicels usually solitary, 1–5 cm. long; sepals ovate, acuminate, 6–7 mm. long, puberulent, green without, grayish within; petals oval or obovate, white, slightly exceeding the sepals, spreading; stamens many, inserted on the margin of the disk; pistils 5–12; fruit greenish, yellowish, or rarely rose-colored, hemispheric, 1 cm. in diameter; drupelets rather large, 4–5 mm. in diameter, globose, finely pubescent; putamen smooth.

TYPE LOCALITY: Oregon, near Mount Hood.
DISTRIBUTION: Wooded mountain slopes, Oregon, Washington, and British Columbia.
ILLUSTRATION: Bibl. Bot. 17[72]: *f. 2.*

III. **Pedati.** Herbaceous, unarmed, hermaphrodite perennials, with flagelliform, creeping stems; leaves pedately 5-foliolate; stipules free, broad, membranous, obovate; petals broad, spreading or reflexed, white; filaments not dilated; receptacle flat; fruit red, pulpy; drupelets few (1–6), distinct, short-stipitate; putamen rugose.

3. **Rubus pedatus** Smith, Pl. Ic. Ined. *pl. 63.* 1791.

Dalibarda pedata Stephan, Mém. Soc. Nat. Mosc. 1: 129. 1806.
Comaropsis pedata DC. Prodr. 2: 555. 1825.
Ametron pedatum Raf. Sylva Tell. 161. 1838.
Psychrobatia pedata Greene, Leaflets 1: 245. 1906.

An unarmed herbaceous perennial, with flagelliform, creeping branches 1–4 dm. long, 1 mm. thick, glabrous, often purplish, rooting at the nodes; flowering branches very short, with 2–4 approximate leaves; stipules free, membranous, obovate, 2–3 mm. long; petioles slender, sparsely pubescent, 3–10 cm. long; leaves pedately 5-foliolate (rarely 3-foliolate); leaflets thin, irregularly incised, glabrous or sparsely pilose on the veins beneath, 1–5 cm. long, obovate or rhombic-obovate, or the outermost obliquely ovate and sometimes lobed; flowers terminal, solitary; peduncles slender, 4–10 cm. long; sepals foliaceous, 8–10 mm. long, lanceolate, ciliate, reflexed, some of them often lobed; petals obovate-oblong, equaling the sepals, white, spreading or reflexed, clawless; stamens many; filaments filiform; anthers globose; pistils 1–6; receptacle flat; drupelets elliptic, distinct, short-stipitate, large, pulpy, 8–10 mm. long; putamen 4 mm. long, rugose; style terminal.

TYPE LOCALITY: Western part of North America.
DISTRIBUTION: Woods, from northern California (?) to Idaho, Alberta, Yukon, and Alaska.
ILLUSTRATIONS: Smith, Pl. Ic. Ined. *pl. 63;* Hook. Fl. Bor. Am. *pl. 61;* Card, Bush-Fruits *f. 55.*

IV. **Arctici.** Herbaceous, unarmed, subdioecious perennials; floral branches short, directly from the branched rootstock; leaves ternate or simple and 3-lobed; stipules free or nearly so, broad, ovate; petals pink or purplish, erect, more or less distinctly clawed; filaments dilated, linear or clavate; fruit red, pulpy; drupelets 20–40, sessile, distinct; putamen smooth.

4. **Rubus stellatus** Smith, Pl. Ic. Ined. *pl. 64.* 1791.

Rubus Chamaemorus Fisch.; Seringe, in DC. Prodr. 2: 565, as synonym. 1825. Not *R. Chamaemorus* L. 1753.
Manteia stellata Raf. Sylva Tell. 161. 1838.
Rubus stellatus acutistipulus Presl, Epim. Bot. 197. 1851.

A herbaceous perennial, with a creeping branched scaly rootstock; stems simple, erect, 3–7-leaved, pubescent, unarmed, terete, 1–2 dm. high; stipules obovate or ovate, acute, nearly distinct, slightly pubescent, 5–10 mm. long; petioles 3–8 cm. long; leaf-blades simple, reniform in outline, 2–6 cm. broad, more or less deeply 3-lobed or 3-cleft, pubescent on both sides or in age glabrate; lobes broadly ovate or obovate, obtuse or acute, simply or doubly crenate-serrate; flowers terminal, solitary; peduncles 3–10 mm. long; sepals linear-lanceolate, finely pubescent, acuminate, 10–12 mm. long, reflexed in anthesis; petals erect, rose-colored, oblanceolate,

clawed, acute or obtuse, 15–20 mm. long; filaments numerous, dilated, linear, incurved; fruit red (?), globose; drupelets 20–25; putamen smooth.

TYPE LOCALITY: Western part of North America.
DISTRIBUTION: Alaska and Yukon; also in Kamtschatka.
ILLUSTRATION: Smith, Pl. Ic. Ined. *pl. 64.*

Rubus acaulis × stellatus. See under *R. acaulis*.

5. **Rubus acaulis** Michx. Fl. Bor. Am. 1: 298. 1803.

Rubus pistillatus Smith, Exot. Bot. **2**: 53. 1804.
Manteia acaulis Raf. Sylva Tell. 161. 1838.
Rubus arcticus β T. & G. Fl. N. Am. **1**: 452. 1840.
Rubus arcticus grandiflorus Ledeb. Fl. Ross. **2**: 70. 1844.

A herbaceous, unarmed, sub-dioecious perennial, with branched, scaly, creeping rootstock; stem 3–12 cm. high, simple, erect, scarcely flexuous, more or less pubescent, scaly below, 2–4-leaved and usually 1-flowered; stipules obovate, elliptic, or lanceolate, 2–8 mm. long; petioles 2–6 cm. long; leaflets 3, thin, green on both sides, sparingly appressed-pubescent on both sides, 2–5 cm. long, unevenly serrate or those of the lower leaves crenate-serrate, mostly rounded or obtuse at the apex, only the upper ones sometimes acute, all more or less petioluled; petiolule of the terminal one often 5–7 mm. long; lateral leaflets broadly obovate, sometimes 2-cleft, the terminal one rhombic- or flabelliform-obovate; flowers usually solitary; peduncles 2–5 cm. long; sepals narrowly lanceolate, often attenuate, 8–10 mm. long, in anthesis reflexed; petals spatulate or oblanceolate, 10–13 mm. (rarely only 8–10 mm.) long, rose-colored, with distinct somewhat yellowish claws; stamens numerous; filaments dilated, clavate, incurved; pistils many; receptacle flat; drupelets coherent, 20–30; putamen smooth, 4 mm. long.

TYPE LOCALITY: Sphagnum bogs near Hudson Bay.
DISTRIBUTION: Arctic and subarctic America, from Labrador, Island of St. Pierre, and the Gaspé Peninsula to northern Minnesota, Wyoming, British Columbia, and Alaska; also in eastern Siberia.
ILLUSTRATIONS: Smith, Exot. Bot. *pl. 86;* Card, Bush-Fruits *f. 54* (as *Rubus arcticus*).

Rubus acaulis × stellatus. Intermediate between the two parents, mostly with 3-foliolate leaves, but with the stouter habit and the larger and firmer leaves of *R. stellatus*. Copper Center, *Heideman 88*. DISTRIBUTION: Alaska.

Rubus acaulis × pubescens. *Rubus propinquus* Richards. Bot. App. Frankl. Journey ed. 2. 19. 1823. "Unarmed, with erect herbaceous stems, bearing suffruticose flagella; leaves ternate, coarsely and obtusely serrate; stipules oblong; panicle 2-flowered, non-glandular; petals elliptic, twice as long as the calyx. Habit of the preceding [*R. triflorus*] and agreeing with the same in most respects, but leaflets broader, shorter, serrations broader and nearly round, . . . leaflets often subsessile. Flowers twice as large, rose-colored, with flowers smaller than in *R. pistillatus* Smith [= *R. acaulis* Michx.]." From this description it appears that *R. propinquus* is probably a hybrid of the two species indicated. DISTRIBUTION: Mackenzie Territory, there also collected by *Preble & Cary 25*.

6. **Rubus arcticus** L. Sp. Pl. 494. 1753.

A herbaceous, unarmed, polygamo-dioecious perennial, with a slender, creeping, scaly, and usually branching rootstock; stems 0.5–2 dm. high, usually finely pubescent, scaly at the base, 2–6-leaved, more or less flexuose; stipules large, obovate or rounded-obovate, 4–6 mm. long, obtuse or rounded at the apex; petioles 2–4 cm. long, finely pubescent; leaflets 3, thin, green on both sides, sparingly appressed-pubescent above, slightly so or glabrate beneath, coarsely, simply or doubly dentate with ovate teeth, sometimes 2-lobed; lateral leaflets nearly sessile, 1.5–4 cm. long, broadly obovate, those of the lower leaves rounded at the apex, those of the upper ones mostly acute; terminal leaflets more distinctly petioluled, of the lower leaves obovate-cuneate and rounded at the apex, and of the upper leaves rhombic-obovate and acute; flowers 1–3, 5–10-merous; peduncles 2–5 cm. long; sepals lanceolate, acute, finely pubescent, in anthesis spreading or reflexed, at last closing around the fruit; petals obovate, rose-red, entire-margined or denticulate, 7–10 mm. long; stamens numerous; filaments dilated, linear, incurved over the pistils; pistils many or in the substaminate flowers few; receptacle flat; fruit globose, dark-red; drupelets 20–40; putamen smooth.

TYPE LOCALITY: Bothnia, Sweden.
DISTRIBUTION: Labrador, Quebec, and apparently in the Canadian Rockies; also in northern and arctic Europe and Asia.
ILLUSTRATIONS: L. Fl. Lapp. *pl. 5, f. 2;* Fl. Dan. *pl. 488;* Suppl. *pl. 17;* Sv. Bot. *pl. 26;* Weihe & Nees, Deuts. Bromb. *pl. 48;* Bild. Nord. Fl. *pl. 310;* Engl. Bot. *pl. 1585* (erroneous); Bot. Mag. *pl. 132;* Gartenflora **10**: *pl. 314;* Britt. & Brown, Ill. Fl. *f. 1893;* ed. 2. *f. 2294.*

Rubus arcticus × pubescens. See under *R. pubescens*.

V. **Saxatiles**. Herbaceous, unarmed or merely bristly perennials with flagelliform decumbent or creeping branches; leaves ternate or rarely quinate; stipules lanceolate or ovate, nearly distinct; petals white, erect, oblanceolate; filaments dilated, linear, often hastately toothed near the apex; fruit red or purple; drupelets usually few, distinct, large; putamen smooth or slightly rugose.

7. **Rubus saxatilis** L. Sp. Pl. 494. 1753.

A mostly herbaceous perennial, with a woody creeping branched rootstock; turions creeping, terete, green, sparingly pubescent, more or less bristly and glandular; flower-bearing branches erect from the rootstock, 1–3 dm. high, pubescent, bristly and glandular, especially above; leaves ternate; stipules oval or ovate on the floral shoots, lanceolate on the stolons, sometimes lobed, 5–20 mm. long; petioles 3–8 cm. long, pubescent; leaflets thin, green on both sides, coarsely and irregularly, simply or doubly serrate, acute, sparingly hairy; lateral leaflets 2–8 cm. long, subsessile, obliquely ovate or obovate, the terminal one broadly ovate, slightly larger, distinctly petioluled; petiolule 5–20 mm. long; lateral veins on each side 5–7; flowers few, in short-peduncled umbel-like clusters at the end of the stem and in the upper axils; sepals ovate-lanceolate, acuminate, grayish-pubescent, about 5 mm. long, in anthesis reflexed; petals erect, white, small, spatulate, about equaling the sepals; stamens numerous; filaments linear, dilated; fruit red, usually of 5 or 6 separate drupelets; putamen oblong,smooth or somewhat faveolate when dry.

TYPE LOCALITY: Stony hills of Europe.
DISTRIBUTION: Southern Greenland; also in mountainous regions of Europe and northern and central Asia.
ILLUSTRATIONS: Fl. Dan. *pl. 134;* Sv. Bot. *pl. 349;* Guimpel, Abb. Deuts. Holz. *pl. 104;* Weihe & Nees, Deuts. Bromb. *pl. 9;* Fl. Deuts. ed. 5. *pl. 2574;* Bild. Nord. Fl. *pl. 309.*

Rubus arcticus × **saxatilis** (*R. castoreus* Fries) has not been collected on this side of the Atlantic.

8. **Rubus transmontanus** Focke, Bibl. Bot. 17[72]: 27, excl. synonym. 1910.

A mostly herbaceous perennial, with a creeping rootstock; turions creeping, flagelliform, more or less pubescent, slightly bristly or glandular-hispid, often purplish; leaves ternate; stipules ovate, 1–1.5 cm. long, more or less puberulent; petioles puberulent and somewhat glandular-hispid, 2–5 cm. long; leaflets rhombic-ovate, 3–7 cm. long, acute at the base, acuminate at the apex, rather coarsely serrate, sparingly pilose or glabrous above, puberulent beneath; inflorescence 1–3-flowered, terminal, corymbiform or with one flower in the leaf-axil just below; pedicels 2–3 cm. long, glandular-hispid; sepals ovate-lanceolate, short-acuminate, 4–5 mm. long; petals erect, white, oblanceolate, 4 mm. long; filaments dilated, linear; pistils 20–50; fruit hemispheric, red; drupelets smaller and less juicy than in *R. americanus;* putamen about 2 mm. long, slightly rugose. (Perhaps a hybrid of *R. americanus* with some species of the *R. strigosus* group.)

TYPE LOCALITY: "Eastern Washington and on the shores of Columbia River near Revelstoke." (Probably the latter locality.)
DISTRIBUTION: Kootenay districts of British Columbia.

9. **Rubus pubescens** Raf. Med. Repos. III. 2: 333. 1811.

Rubus saxatilis canadensis Michx. Fl. Bor. Am. 1: 298. 1803.
Rubus saxatilis americana Pers. Syn. Pl. 2: 52. 1806.
Rubus flagellaris Schrank, Denks. Bot. Ges. Regensb. 1[2]: 26. 1818. Not *R. flagellaris* Willd. 1809.
Cylactis lyncemontana Raf. Jour. de Phys. 89: 97. 1819.
Cylactis montana Raf. Am. Jour. Sci. 1: 377. 1819.
Rubus triflorus Richards. Bot. App. Frankl. Journey ed. 2. 19. 1823.
Rubus saxatilis Bigel. Fl. Bost. ed. 2. 201. 1824. Not *R. saxatilis* L. 1753.
Rubus canadensis Torr. Fl. U. S. 488. 1824. Not *R. canadensis* L. 1753.
Rubus mucronatus Seringe, in DC. Prodr. 2: 565. 1825.
Rubus aegopodioides Seringe, in DC. Prodr. 2: 565. 1825.
Rubus americanus Britton, Mem. Torrey Club 5: 185. 1894.

An unarmed perennial, suffruticose at the base; turions procumbent, flagelliform, terete, puberulent, often purpurascent, often emitting branches rooting at the nodes and ends, 1–10 dm. long, 1–2 mm. thick; leaves ternate, rarely quinate; stipules broad, obovate, ovate, or

lanceolate, acute or obtuse, 5–10 mm. long, nearly distinct, pubescent, sometimes slightly lobed; petioles 3–6 cm. long, sparingly pubescent; leaflets 3–10 cm. long, thin, light-green on both sides, sparingly pubescent or glabrate on both sides, sharply and doubly serrate, acuminate at the apex, acute at the base; lateral leaflets subsessile, obliquely ovate or lanceolate, sometimes lobed, the terminal one short-petioluled, rhombic, obovate, or oblanceolate; flower-bearing branches erect, 1–3 dm. high, pubescent, arising the second year on the lower parts of the turions, 2–4-leaved; leaves similar to those of the turions; flowers erect, one terminal and 1–3 axillary; peduncles 2–5 cm. long, slender, pubescent and sparingly glandular; sepals narrowly lanceolate, acuminate, softly pubescent, 4–5 mm. long, reflexed in anthesis; petals white, erect, elliptic or oblanceolate, with a broad short claw, acute, slightly if at all exceeding the sepals; stamens numerous; filaments dilated and linear, three fourths their length, then somewhat hastate with a subulate tip; pistils 12–25; fruit red, globose; receptacle flat; drupelets large, pulpy, slightly cohering; putamen 2.5 mm. long, slightly rugose.

TYPE LOCALITY: Hudson Bay.

DISTRIBUTION: Swamps and damp woods, from Newfoundland to New Jersey, Iowa, Montana, and British Columbia; Colorado.

ILLUSTRATIONS: Hook. Fl. Bor. Am. *pl. 62;* Britt. & Brown, Ill. Fl. *f. 1897;* ed. 2. *f. 2295;* Card, Bush-Fruits *f. 56;* Bibl. Bot. **17**[72]: *f. 7.*

Rubus acaulis × pubescens. See under *R. acaulis.*

Rubus arcticus × pubescens. *Rubus castoris* Fernald, Rhodora **9**: 162; hyponym. 1907. Not *R. castoreus* Fries. Slightly stoloniferous, as *R. pubescens,* and having the narrow petals and the filaments with a prominent tooth on each side near the apex as in that species, but the branches short and erect and the petals pinkish. Gaspé Peninsula, Quebec.

VI. **Glabrati.** Perennials with more or less woody and prickly stems, creeping or climbing; leaves simple or ternate; stipules persistent, distinct, broad; petals spreading; fruit red or purple, mostly rather dry; drupelets more or less coherent with each other.

10. **Rubus nivalis** Dougl.; Hook. Fl. Bor. Am. **1**: 181. 1832.

Rubus pacificus J. M. Macoun, Ottawa Nat. **16**: 213. 1903.
Cardiobatus nivalis Greene, Leaflets **1**: 244. 1906.

A perennial, more or less woody; stems creeping, terete, puberulent, 3–12 dm. long, sparingly armed with curved or hooked prickles; leaves simple or sometimes ternate, bluish green and shining; stipules broadly ovate, short-acuminate, often toothed or lobed, 5–10 mm. long; petioles 2–5 cm. long, channeled, armed with slender recurved prickles: blades of the simple leaves 3–6 cm. long, ovate-cordate or rounded-cordate, more or less distinctly 3-lobed, dentate with broad, abruptly mucronate teeth, reticulate below, glabrous or sparingly hispid above, armed with slender recurved prickles on the veins beneath; lower leaflets of the ternate leaves obliquely ovate, the terminal one broadly rhombic-ovate, somewhat larger; floral branches short, axillary, usually with more than one pair of bracts; flowers usually solitary; sepals 7–9 mm. long, often unequal, lanceolate, acuminate, the outer foliaceous, with a few teeth, villous, in anthesis reflexed; hypanthium short-turbinate, more or less prickly; petals white, linear-lanceolate, tapering at both ends; stamens 10–15, ascending; filaments filiform; pistils few, not all maturing; drupelets pubescent, large, red; putamen faveolate.

TYPE LOCALITY: High snowy ridges of the Rocky Mountains.

DISTRIBUTION: Mountains from northern California (?) and Oregon to Idaho and British Columbia.

ILLUSTRATION: Bibl. Bot. **17**[72]: *f. 3.*

11. **Rubus pumilus** Focke, Abh. Nat. Ver. Bremen **4**: 155. 1874.

A somewhat armed perennial; stems creeping, slender, here and there rooting, more or less woody, armed with scattered small curved prickles, pilose, with bark shreddy in age; floral branches short, erect, villous, prickly, 1–3-leaved; leaves simple; stipules free, ovate or ovate-lanceolate, acute or acuminate, sometimes somewhat toothed, 5–8 mm. long; petioles 1–2 cm. long, tomentose-villous, armed with curved or straight weak prickles; blades rounded-cordate or reniform, often more or less distinctly 3-lobed, about 2 cm. long, 3–4 cm. broad, crenate-dentate, pilose, in age glabrescent above, villous especially on the veins beneath; flowers terminal, solitary or two together; pedicels 1.2–3 cm. long, villous and prickly; hypanthium densely bristly or prickly; sepals lanceolate, entire or dentate, hirsute, 1 cm. long,

green on both sides; petals white, broadly elliptic, longer than the sepals; stamens numerous; pistils numerous; fruit red, about 1 cm. in diameter; drupelets 10–15, large; putamen about 3 mm. long, nearly smooth.

TYPE LOCALITY: San Andres, Mexico.
DISTRIBUTION: Mountain woods, from the state of Mexico to southwestern Chihuahua.
ILLUSTRATION: Bibl. Bot. 17[72]: *f. 4.*

12. **Rubus glabratus** H.B.K. Nov. Gen. & Sp. 6: 221. 1823.

A suffruticose perennial; stems ascending or decumbent, 5–8 dm. long, armed with recurved prickles; floral branches short, usually about 1 cm. long, glabrous, armed with slender, straight or curved prickles; leaves usually ternate, sometimes unifoliolate; stipules ovate, acute, entire or dentate, adnate below to the petioles; petioles 2–3 cm. long, puberulent, recurved-prickly; leaflets elliptic or oval, 3–5 cm. long, acute at the apex, acute or rounded at the base, irregularly and coarsely serrate, glabrous above, beneath paler and puberulent on the prominent veins; flowers usually solitary, terminal; peduncles bristly and glandular-hispid; hypanthium grayish-pubescent; sepals ovate, mucronate, 5–8 mm. long; petals rose-colored, 10–12 cm. long, suborbicular; stamens 25–30; filaments filiform; pistils about 80; receptacle conic; fruit red, villous.

TYPE LOCALITY: High plateau of Postos, near Guachucal, on the shore of Rio Blanco, Ecuador.
DISTRIBUTION: In the mountains, from Costa Rica to Ecuador.
ILLUSTRATION: H.B.K. Nov. Gen. & Sp. *pl. 558.*

VII. **Rosaefolii.** Shrubby perennials, usually unarmed or with a few prickles; leaves pinnately compound; stipules narrow, adnate to the petioles; flowers solitary or few, large; petals large, white or purplish; fruit large, red, salmon-colored or yellow; drupelets numerous, mostly glabrous, coherent, falling off together from the dry receptacle.

13. **Rubus spectabilis** Pursh, Fl. Am. Sept. 348. 1814.

Rubus stenopetalus Cham.; Choris, Voy. Pitt. Kamtch. 10. 1822.
Parmena spectabilis Greene, Leaflets 1: 244. 1906.

Stems perennial, shrubby, 2–5 m. high, glabrous, or pilose when young, with yellowish shreddy bark, unarmed when young or with small, straight prickles with depressed bases; leaves usually 3-foliolate; stipules linear-lanceolate or subulate, often 1 cm. long; petioles 4–6 cm. long, unarmed or with very few prickles, sparingly pilose, slender; leaflets thin, green and sparingly pubescent on both sides, incisedly double-serrate with lanceolate teeth, often 2–3-lobed; terminal leaflet 4–10 cm. long, often deltoid- or rhombic-ovate, acuminate at the apex, truncate or cuneate at the base; petiolule 1–3 cm. long; lateral veins 8–12 on each side; lateral leaflets obliquely ovate, subsessile; flowers mostly solitary, sometimes 2–4; pedicels silky-villous, sometimes glandular-hispid; sepals ovate, silky, abruptly short-acuminate, about 1 cm. long, in fruit reflexed; petals reddish-purple or rose-colored, elliptic, acute or obtuse, 15–20 mm. long; stamens numerous; filaments somewhat dilated, linear; fruit large, ovoid, 15–20 mm. long, 12–15 mm. thick, red or yellow; drupelets numerous, falling off together, glabrous; styles long; putamen strongly reticulate.

TYPE LOCALITY: Banks of the Columbia.
DISTRIBUTION: Along streams, from southern Alaska to Idaho and California.
ILLUSTRATIONS: Pursh, Fl. Am. Sept. *pl. 16;* Lodd. Bot. Cab. *pl. 1602;* Bot. Reg. **17**: *pl. 1424;* Maund, Bot. Gard. *pl. 568;* Loud. Arb. **2**: *f. 458;* Card, Bush-Fruits *f. 60;* C. K. Schneid. Handb. Laubh. **1**: *f. 307 f.*

Rubus idaeus × **spectabilis** Focke, Abh. Nat. Ver. Bremen **12**: 96. 1891. Sparingly and weakly prickly, with the habit of *R. idaeus;* leaves ternate, grayish-tomentulose beneath; flowers few, like those of *R. idaeus,* but petals ascending, rose-colored, elliptic, longer than the sepals. Originated in gardens.

Rubus spectabilis × **viburnifolius.** Similar to the following, but the leaflets more incised, the sepals narrower, and the twigs not pubescent; petals reddish, equaling the sepals and strongly veined. On an island in Lake Clark, Alaska, 1902, *M. W. Gorman* (U. S. Nat. Herb.).

Rubus spectabilis × **subarcticus.** Leaves with somewhat the cut of those of *R. spectabilis,* but less deeply incised and somewhat white-tomentose beneath; stem bristly; branchlets and petioles puberulent and inflorescence glandular; disk expanded and filaments purplish as in *R. spectabilis* (the petals not seen), and fruit puberulent, fully 1 cm. in diameter, with large drupelets. Camp 53, Alaska, 1899, *F. C. Shrader* (who also collected *R. subarcticus* at the same place).

14. **Rubus franciscanus** Rydberg, sp. nov.

Rubus ursinus Torr. Pac. R. R. Rep. **4**: 85. 1857. Not *R. ursinus* Cham. & Schlecht. 1827.
Rubus spectabilis Menziesii S. Wats. Bot. Calif. **1**: 172. 1876. Not *R. Menziesii* Hook. 1832.
Parmena Menziesii Greene, Leaflets **1**: 244, in part. 1906.

Stems perennial, shrubby, 2–4 m. high, finely pilose at first, in age glabrous, armed with short straight prickles, with depressed bases; leaves 3-foliolate; stipules linear-subulate; petioles finely villous-tomentose, sparingly prickly or unarmed, 3–4 cm. long; leaflets dark-green and sparingly pubescent above, densely and finely pilose beneath, at first almost tomentose, doubly crenate-serrate with broadly ovate, mucronate teeth, terminal leaflets ovate or rhombic-ovate, acute at the apex, cuneate or rarely truncate at the base, 3–6 cm. long; petiolules 0.5–2 cm. long; lateral leaflets subsessile, smaller, oblique and often obtuse or rounded at the apex; flowers mostly solitary; peduncles, hypanthium, and calyx villous-tomentose; sepals broadly ovate, abruptly short-acuminate; petals rose-colored or rose-purple, oval, about 15 mm. long; stamens numerous; filaments dilated, narrowly linear; fruit short-ovoid, about 15 mm. long and 12 mm. thick, glabrous; drupelets numerous; putamen strongly reticulate

TYPE LOCALITY: San Francisco.
DISTRIBUTION: Central California to southern Oregon.

15. **Rubus rosaefolius** Smith, Pl. Ic. Ined. *pl. 60*. 1791.

Rubus Commersoni Poir. in Lam. Encyc. **6**: 240. 1804.
Rubus rosaefolius coronarius Sims, Bot. Mag. *pl. 1783*. 1816.
Rubus coronarius Sweet, Hort. Brit. 144. 1826.

Stems perennial, erect, often with recurving-spreading branches, pilose or glabrate, armed with small hooked and more or less flattened prickles; leaves pinnately 5–15-foliolate, in the tropics often evergreen; stipules filiform or subulate; petioles and rachis pilose and more or less prickly; terminal leaflet lanceolate, incised or doubly-serrate, with ovate mucronate teeth, rounded or cuneate at the base, long-acuminate at the apex, sparingly pilose on both sides or glabrate, 4–8 cm. long; lateral veins 10–15 on each side; petiolule about 1 cm. long; lateral leaflets subsessile or very short-petioluled; flowers solitary or in few-flowered cymes, terminal; pedicels pilose, rarely prickly; sepals lanceolate, caudately long-acuminate, often with foliaceous tips, spreading in fruit; petals white, obovate, 1–1.5 cm. long, or in the variety *coronarius* often 2 cm. long or more and greatly increased in number; fruit thimble-shaped, 2–3.5 cm. long, bright-red or orange; drupelets very numerous, small, glabrous, sometimes slightly glandular-granuliferous.

TYPE LOCALITY: "Island of Mauritius." (According to Baker "brought from the Malay Isles by Commerson.")
DISTRIBUTION: Naturalized in the West Indies; native of southern and eastern Asia, but now generally distributed in the tropics.
ILLUSTRATIONS: Smith, Pl. Ic. Ined. *pl. 60;* Hook. Ic. Pl. *pl. 349;* Bot. Cab. *pl. 158;* Bibl. Bot. **17**[72]: *f. 65;* Cycl. Am. Hort. *f. 2197;* C. K. Schneid. Handb. Laubh. **1**: *f. 307 p; f. 309 f–f';* (var. *coronarius* Sims:) Bot. Mag. *pl. 1783*.

Rubus occidentalis × **rosaefolius** J. H. Wilson, Rep. Third Int. Conf. Genetics 206. 1907. Garden hybrid.

VIII. **Idaei.** Shrubs with biennial stems, more or less bristly or prickly; leaves pinnately or pedately compound, those of the floral branches mostly ternate, white-tomentose beneath except in a few species, then usually more or less glaucous; petals small, erect or incurved, white or pink or purple; fruit red or purplish-black, or sometimes yellow; drupelets numerous in ours, pubescent, coherent and falling off together from the dry receptacle; putamen rugose or faveolate.

16. **Rubus phoenicolasius** Maxim. Bull. Acad. St. Pétersb. **17**: 160. 1872.

Stems biennial, 1–3 m. long, recurving, densely glandular-hispid with long red-brown or purplish hairs and also armed with recurved flattened prickles, rooting at the tips; leaves usually 3-foliolate; stipules setaceous; petioles, petiolules, and midveins copiously glandular-hispid and also prickly; petioles 2–7 cm. long; terminal leaflets broadly ovate or round-ovate, often more or less lobed, double-toothed, with broad, round-ovate, mucronate teeth, rounded or subcordate at the base, usually abruptly short-acuminate at the apex, dark-green and sparingly pilose or glabrate above, densely white-tomentose beneath; lateral leaflets ovate, smaller,

mostly acute at the apex, sessile; flowers in dense corymbiform cymes at the ends of the branches and in the upper axils, forming together a leafy panicle; hypanthium and calyx densely glandular-hispid; sepals lanceolate, long-acuminate, tomentose within, spreading in anthesis, soon enclosing the fruit, later again spreading; petals red, obovate, much shorter than the sepals; fruit small, hemispheric, cherry-red, acid, insipid; drupelets many, pubescent.

TYPE LOCALITY: Lake Konoma, Japan.
DISTRIBUTION: Escaped from cultivation and sparingly established from Connecticut to Ohio and District of Columbia; native of Japan and China.
ILLUSTRATIONS: Cycl. Am. Hort. *f. 2198;* C. K. Schneid. Handb. Laubh. **1**: *f. 307 l; f. 308 p–t.*

Rubus idaeus × phoenicolasius J. H. Wilson, Rep. Third Int. Conf. Genetics 209. 1907. *R. Paxii* Focke, Abh. Nat. Ver. Bremen **19**: 204. 1908. Garden hybrid.

17. **Rubus ellipticus** Smith, in Rees, Cycl. **30**: *Rubus* no. **16.** 1815.

Rubus Gowry-phul Roxb. Hort. Beng. 39; hyponym. 1814.
Rubus flavus Hamilton; D. Don, Prodr. Fl. Nep. 234. 1825.
Rubus Gowreephul Roxb. Fl. Ind. **2**: 517. 1832.

Stems perennial, 1–5 m. high, obscurely angled, villous-tomentose and hispid with long reddish hairs, armed with recurved, somewhat flattened, pubescent prickles; leaves ternate; stipules subulate, 5–8 mm. long; petioles, petiolules, and midveins tomentose, hispid, and armed with recurved prickles; petioles 3–7 cm. long; leaflets 5–10 cm. long, coriaceous, dark-green and nearly glabrous above, white-tomentose and with prominent veins beneath, orbicular, oval, or elliptic, obovate, obtuse, or abruptly short-acuminate at the apex, rounded at the base, sharply and finely double-serrate; petiolule of the median leaflet 2–3 cm. long, those of the lateral ones usually less than 5 mm. long; panicles small, terminal and axillary; bracts setaceous; pedicels, hypanthium, and sepals tomentose, sometimes bristly, the last oval, mucronate; petals white, obovate, about 8 mm. long; fruit hemispheric, on a dry receptacle; drupelets numerous, golden-yellow, silky; putamen rugose.

TYPE LOCALITY: Nepal, India.
DISTRIBUTION: Mountains of Jamaica, introduced and naturalized; native of India.
ILLUSTRATIONS: Cycl. Am. Hort. *f. 2199;* Wight, Ic. Pl. Ind. Or. *pl. 230.*

18. **Rubus glaucus** Benth. Pl. Hartw. 173. 1845.

Stems biennial, 1–3 m. high, terete or nearly so, glabrous, more or less glaucous-pruinose, armed with rather small, recurved, flat prickles; leaves usually all pinnately trifoliolate; stipules setaceous; petioles, petiolules, and midveins recurved-prickly; petioles 5–10 cm. long; terminal leaflets petioluled, ovate or ovate-lanceolate, 6–15 cm. long, glabrous and dark-green above, often blackening in drying, white-tomentose beneath, finely double-serrate, obtuse, rounded or subcordate at the base, abruptly acuminate; lateral veins 9–12 on each side; petiolules 1–5 cm. long; lateral leaflets sessile or subsessile, or those of the main stem petioluled, similar or a little more lanceolate, acute to rounded at the base; inflorescence rather few-flowered, rounded, terminal or in the upper leaf-axils; branches more or less tomentose and sometimes glandular; sepals lanceolate, gradually acuminate, densely tomentose, 6–7 mm. long, in fruit strongly reflexed; petals white, about equaling the sepals; fruit dark-purple, 12–20 mm. long, 8–15 mm. thick; drupelets numerous, tomentose when young.

TYPE LOCALITY: Mount Pichincha, Ecuador.
DISTRIBUTION: Southern Mexico to Ecuador.

19. **Rubus eriocarpus** Liebm. Vidensk. Meddel. **1852**: 162. 1853.

Rubus sp. *occidentalis* prox. Schlecht. & Cham. Linnaea 5: 571. 1830.
Rubus occidentalis Schlecht. Linnaea **13**: 271. 1839. Not *R. occidentalis* L. 1753.
Rubus occidentalis eriocarpus Focke, Abh. Nat. Ver. Bremen **4**: 147. 1874.

Stems biennial, obsoletely angled, 1–2 m. high, glabrous, glaucous-pruinose, armed with flattened, slightly recurved prickles; leaves all ternate, or those of the turions palmately quinate; stipules setaceous, pubescent; petioles, petiolules, and midveins glabrous, prickly; petioles on the turions often 1 dm. long; terminal leaflets 6–10 cm. long, ovate, finely double-serrate, abruptly long-acuminate at the apex, rounded or cordate at the base, puberulent above, white-tomentose beneath; lateral veins 12–16 on each side; petiolule 2–3 cm. long; lateral leaflets ovate, lanceolate, rounded at the base, short-petioluled; leaflets on the floral branches shorter and less acuminate, the median one with a petiolule 5–15 mm. long, the lateral

ones sessile; corymbs terminal, few-flowered, rarely also axillary in the upper axils, tomentose and with weak prickles; sepals lanceolate, long-acuminate, 5–6 mm. long, strongly reflexed in fruit; petals elliptic, white, shorter than the sepals, erect; fruit oblong, rarely subglobose, 10–12 mm. long, 6–8 mm. thick; drupelets numerous, villous-tomentose.

TYPE LOCALITY: Chinautla, Puebla.
DISTRIBUTION: Central and southern Mexico to Panama.

20. **Rubus Pringlei** Rydberg, sp. nov.

?*Rubus occidentalus incisus* Schlecht. Linnaea **13**: 271. 1839.
Rubus occidentalis grandiflorus Focke; Donn. Smith, Bot. Gaz. **16**: 3. 1891. Not *R. grandiflorus* Kaltenb. 1845.
Rubus occidentalis mexicanus Focke, Bibl. Bot. **17**[72]: 201. 1911. Not *R. mexicanus* O. Kuntze. 1879.

Stems biennial, subterete, 1–2 m. high, glabrous, armed with small, flattened, recurved prickles; leaves all ternate; stipules long, setaceous; petioles, petiolules, and midveins prickly; petioles glabrous, 3–8 cm. long; terminal leaflets lanceolate or ovate-lanceolate, sharply double-serrate, with lanceolate cuspidate-mucronate teeth, finely puberulent and dark-green above, white-tomentose beneath, long-acuminate at the apex, acute or rounded at the base, 4–6 cm. long; petiolule 1–2 cm. long; lateral leaflets similar, sessile or nearly so; flowers solitary or in clusters of 2 or 3; pedicels tomentose, bristly or weakly prickly, recurved in fruit; sepals ovate, abruptly caudate-acuminate, 6–7 mm. long, tomentose on both sides, enclosing the fruit; petals elliptic, about equaling the sepals; fruit ovoid, about 2 cm. long, 1.5 mm. thick, red or at last purple with a bloom; drupelets numerous, tomentose.

TYPE LOCALITY: Slopes of Volcan de Agua, Guatemala.
DISTRIBUTION: Northern Mexico to Guatemala.

21. **Rubus occidentalis** L. Sp. Pl. 493. 1753.

Rubus idaeus americanus Torr. Ann. Lyc. N. Y. **2**: 196. 1827.
Rubus occidentalis pallidus L. H. Bailey, Cycl. Am. Hort. 1582. 1902.
Rubus occidentalis flavobaccus Blanchard, Rhodora **7**: 146. 1905.
Melanobatus occidentalis Greene, Leaflets **1**: 243. 1906.

Stems biennial, 1–3 m. long, recurved, at length rooting at the tips, usually purplish or bluish, glaucous-pruinose, glabrous, armed with moderately strong, somewhat flattened, recurved prickles; leaves of the turions 3-foliolate, or some of them pedately 5-foliolate; stipules setaceous; petioles and petiolules sparingly prickly, glabrous or nearly so; petioles 5–10 cm. long; median leaflet ovate to broadly cordate, sometimes more or less lobed, doubly serrate, with ovate-lanceolate teeth, abruptly acuminate at the apex, rounded to cordate at the base, 5–8 cm. long, puberulent or glabrate and dark-green above, white-tomentose beneath; petiolules 2–4 cm. long; lateral leaflets in the 5-foliolate leaves similar but narrower, their petiolules 1–2 cm. long; outer leaflets sessile or with very short petiolules, often oblique and sometimes 2-lobed; floral branches green, their leaves 3-foliolate; leaflets similar but rarely cordate at the base and smaller, the terminal one with a petiolule about 1 cm. long, the lateral ones sessile; corymbs few-flowered, terminal or with small branches in the upper axils, more or less tomentose, and prickly but not glandular-hispid; sepals tomentose on both sides, ovate-lanceolate, long-acuminate, 7–8 mm. long, at first reflexed, but at last closing around the fruit; petals white, elliptic, shorter than the sepals; fruit dark bluish-purple, with a bloom, hemispheric; drupelets many, tomentose.

TYPE LOCALITY: Canada.
DISTRIBUTION: New Brunswick and Quebec to the mountains of Georgia, Colorado, and Minnesota.
ILLUSTRATIONS: Dill. Hort. Elth. *pl. 247;* Britt. & Brown, Ill. Fl. *f. 1896;* ed. 2. *f. 2293;* L. H. Bailey, Evol. Nat. Fr. *f. 55;* Cycl. Am. Hort. *f. 2201, 2202;* C. K. Schneid. Handb. Laubh. **1**: *f. 307 o.*

Rubus occidentalis × rosaefolius. See under *R. rosaefolius.*

Rubus occidentalis × strigosus. *Rubus neglectus* Peck, Ann. Rep. N. Y. State Cab. **22**: 53. 1869. *Rubus strigosus × occidentalis* (Aust. Bull. Torrey Club **1**: 31. 1870. Does not make the combination, but indicates the hybridity). *Melanobatus neglectus* Greene, Leaflets **1**: 243. 1906. *Melanobatus michiganus* Greene, Leaflets **1**: 244. 1906. Resembling *R. occidentalis* in habit, but the leaves of the young shoots sometimes pinnately 5-foliolate as in *R. strigosus*, the peduncles, pedicels, and petioles more or less glandular-hispid, the sepals more spreading and the fruit usually dark-red. Quebec to Rhode Island, Pennsylvania, and Michigan. ILLUSTRATIONS: Britt. & Brown, Ill. Fl. *f. 1895;* ed. 2. *f. 2292;* L. H. Bailey, Evol. Nat. Fr. *f. 56;* Cycl. Am. Hort. *f. 2200.*

Rubus occidentalis × procumbens. Most resembling *R. occidentalis* in habit, inflorescence and armature, but the leaves light-green, harsh, without tomentum, and the stem terete; fruit abortive; seeds sterile. Thicket, Mt. Cuba, Delaware, July 12, 1875, *A. Commons.*

22. **Rubus leucodermis** Dougl.; (Hook. Fl. Bor.-Am. 1: 178, as synonym. 1832) T. & G. Fl. N. Am. 1: 454. 1840.

Rubus occidentalis β Hook. Fl. Bor. Am. 1: 178. 1832.
Rubus occidentalis leucodermis Focke, Abh. Nat. Ver. Bremen 4: 147. 1874.
Melanobatus leucodermis Greene, Leaflets 1: 243. 1906.

Stems biennial, erect, 1–2 m. high, yellowish and glaucous, glabrous, armed with stout, flat, recurved prickles; leaves of the turions usually pedately 5-foliolate; stipules setaceous; petioles, petiolules, and midveins prickly; petioles 4–8 cm. long, slightly pubescent when young; terminal leaflet broadly ovate, 6–10 cm. long, acute, rarely short-acuminate, often somewhat lobed, coarsely double-serrate with triangular teeth, rounded or subcordate at the base; petiolule 3–6 cm. long; lateral leaflets similar but narrower and merely rounded at the base, their petiolules 2–3 cm. long; lower leaflets usually subsessile; floral branches usually with yellowish bark, their leaves 3-foliolate, the leaflets smaller, 3–6 cm. long, the terminal one with a petiolule 1–2 cm. long, the lateral ones sessile or subsessile; corymbs usually few-flowered, terminal, or with a few branches in the upper leaf-axils; pedicels tomentose, prickly, but not glandular; hypanthium and calyx tomentose, not glandular; sepals lanceolate, long-acuminate, 7–8 mm. long, in fruit merely spreading; petals white, oblong or elliptic, somewhat clawed, shorter than the sepals; fruit hemispheric, dark reddish-purple or nearly black, with a bloom; drupelets rather numerous, tomentose.

TYPE LOCALITY: Oregon.
DISTRIBUTION: British Columbia to Montana, Utah, and central California.
ILLUSTRATIONS: Card, Bush-Fruits *f. 59;* C. K. Schneid. Handb. Laubh. 1: *f. 307 n.*

Rubus leucodermis × melanolasius. *Rubus strigosus* × *leucodermis* Macoun, Cat. Can. Pl. 5: 319. 1890. *Rubus strigosus* × *occidentalis leucodermis* Card, Bush-Fruits 318. 1898. Resembling *R. leucodermis* in habit and in the prickly stem, but the upper part of the branches, the peduncles, pedicels, and petioles more or less glandular-hispid; twigs more yellow and leaflets lighter-green and less acuminate than in *R. occidentalis* × *strigosus* (*R. neglectus* Peck); sepals more spreading than in *R. glaucifolius* and *R. bernardinus* or even reflexed, and usually purple-tinged. British Columbia and Montana.

23. **Rubus bernardinus** (Greene) Rydberg.

Melanobatus bernardinus Greene, Leaflets 1: 244. 1906.

Stems biennial, recurved or decumbent, glabrous or nearly so, the second year yellowish or purplish, glacuous, armed with rather stout, reflexed and flattened prickles; leaves of the floral branches 3-foliolate; stipules small, setaceous; petioles, petiolules, and midveins prickly; terminal leaflet broadly ovate, deltoid- or rhombic-ovate, sometimes 3-lobed, 2–5 cm. long, coarsely double-serrate with ovate teeth, acute at the apex, usually rounded at the base, dark-green and sparingly pubescent above, densely and finely white-tomentose beneath; petiolule 1–2 cm. long; lateral leaflets more rounded, decidedly oblique, somewhat smaller, subsessile; inflorescence few-flowered, terminal, short-tomentose, glandular and with a few prickles; sepals lance-ovate, densely tomentose, short-acuminate; petals white, oval, shorter than the sepals; fruit hemispheric, 1 cm. high; drupelets numerous, pubescent.

TYPE LOCALITY: Mill Creek Falls, San Bernardino Mountains, California.
DISTRIBUTION: Southern California; apparently also New Mexico.

24. **Rubus glaucifolius** Kellogg, Proc. Calif. Acad. 1: 67. 1855.

Melanobatus glaucifolius Greene, Leaflets 1: 244. 1906.

Stems biennial, decumbent, terete, reddish, armed with small, straight or slightly recurved prickles, sparingly villous; leaves of the flowering branches ternate; stipules narrowly linear-lanceolate or setaceous, villous; petioles 4–5 cm. long, villous and sparingly prickly, with weak nearly straight prickles; terminal leaflet petioluled, ovate or oval, rounded or subcordate at the base, green and puberulent above, white-tomentose beneath, 4–6 cm. long, acute, sometimes slightly lobed, coarsely double-serrate with triangular teeth; lateral veins 5–7 on each side; petiolule 1.5–2 cm. long; lateral leaflets subsessile, similar, cuneate or rounded at the base; corymbs few-flowered, terminal or axillary; pedicels villous-tomentose, with a few prickles; hypanthium and sepals tomentose and rather densely glandular-hispid; sepals lanceolate, acuminate, 6–7 mm. long, closing around the fruit; petals white, oblong, clawed,

erect, nearly equaling the sepals; fruit hemispheric, reddish-purple; drupelets rather few, tomentose.

TYPE LOCALITY: Placerville, California.
DISTRIBUTION: Mountains of northern and central California and southern Oregon.

25. **Rubus nigerrimus** (Greene) Rydberg.

Rubus hesperius Piper, Erythea **5**: 103. 1897. Not *R. hesperius* Rogers. 1896.
Malanobatus nigerrimus Greene, Leaflets **1**: 244. 1906.
Rubus transmontanus Focke, Bibl. Bot. **17**[72]: 27, in part, as to synonym. 1910.

Stem biennial, 1–2 m. high, at first glaucous, when older brownish and shining, strongly armed with straight flat prickles 4–8 mm. long; floral branches 1–3 dm. long, armed with more or less recurved prickles; leaves 3-foliolate or on more vigorous turions pedately 5-foliolate; stipules setaceous, adnate to the petioles, about 1 cm. long; petiole, rachis, and ribs armed with recurved flat prickles; leaflets 5–8 cm. long, ovate, acuminate, thickish, coarsely and doubly serrate, green and glabrous on both sides; petiolules of the lateral leaflets 1–2 mm. long, that of the terminal one 2–5 cm. long; flowers in terminal corymbs or a few in the upper leaf-axils; peduncle and pedicels armed with recurved prickles; hypanthium and calyx glabrous or sparingly glandular; sepals lanceolate, long-acuminate, about 12 mm. long; petals spatulate, white, 3–4 mm. long, erect; fruit nearly black, without bloom; drupelets numerous, tomentose; putamen 2 mm. long, strongly faveolate-reticulate.

TYPE LOCALITY: Snake River Canyon at Wawawai and Alamota, Whitman County, Washington.
DISTRIBUTION: Eastern and central Washington.

26. **Rubus idaeus** L. Sp. Pl. 492. 1753.

Rubus idaeus vulgatus Arrh. Rub. Suec. Monog. 12. 1839.
Batidaea itascica Greene, Leaflets **1**: 239. 1906.

Stems biennial, erect, light-colored, finely tomentose when young, but glabrate the second year, sparingly armed with bristles or weak prickles; leaves of the turions mostly pinnately 5-foliolate, those of the floral branches mostly 3-foliolate; petioles, rachis, and midveins finely tomentose and with a few small curved prickles; stipules subulate; petioles 3–6 cm. long; terminal leaflet petioluled, broadly ovate, short-acuminate at the apex, rounded or cordate at the base, coarsely double-serrate with ovate, mucronate teeth, dark-green and rather closely but finely pubescent or glabrate above, white-tomentose beneath, 5–10 cm. long; lateral leaflets similar, but somewhat smaller, sessile and rounded at the base; inflorescence short-racemose, terminal and with branches in the upper axils; peduncles and pedicels more or less tomentose, with a few small slightly recurved prickles or bristles, but without glands; sepals ovate-lanceolate, long-acuminate, tomentose, not glandular; petals white, elliptic, about 5 mm. long, shorter than the sepals; fruit red, thimble-shaped, sweet; drupelets many, tomentose.

TYPE LOCALITY: Stony places in Europe.
DISTRIBUTION: Escaped from cultivation and sparingly established from New England to Minnesota; native of Europe and western Asia.
ILLUSTRATIONS: Engl. Bot. *pl. 2442;* Fl. Dan. *pl. 788;* Sv. Bot. *pl. 181;* Hayne, Arzn. Gew. **3**: *pl. 8;* Weihe & Nees, Deuts. Bromb. *pl. 47;* Fl. Deuts. ed. 5. *pl. 2575;* Card, Bush-Fruits *f. 57;* C. K. Schneid. Handb. Laubh. **1**: *f. 307 h, i; f. 308 a–h; f. 309 k–q;* Bild. Nord. Fl. *pl. 306.*

Rubus idaeus × spectabilis. See under *R. spectabilis.*

Rubus idaeus × phoenicolasius. See under *R. phoenicolasius.*

Rubus idaeus × strigosus. See under *R. strigosus.*

Rubus idaeus × ursinus Focke, Bibl. Bot. **17**[72]: 211. 1911. "Logan berry." Resembling most closely *R. ursinus* in habit, but the fruit dark-purple and falling off as a cap. ILLUSTRATION: L. H. Bailey, Evol. Nat. Fr. *f. 79.*

27. **Rubus melanotrachys** Focke, Abh. Nat. Ver. Bremen **13**: 472. 1896.

Rubus idaeus melanotrachys Focke, Abh. Nat. Ver. Bremen **13**: 472. 1896.

Stems biennial, erect, 1–2 m. high, purplish, glabrous, short-bristly; leaves of the floral branches ternate; petioles sparingly and veins rarely bristly, the former 3–5 cm. long; leaflets coarsely and somewhat doubly serrate, acuminate, green and glabrous above, densely white-tomentose beneath, thin, 4–6 cm. long, the terminal one broadly ovate or obovate on a petiolule 1–2 cm. long; inflorescence short, almost corymbiform; pedicels villous, not at all glandular, armed with purple, curved, strong bristles or weak prickles; hypanthium and calyx tinged with

purple, bristly and villous, not glandular; sepals lanceolate caudate-acuminate, white-tomentose within and on the margins, 7 mm. long; petals white, elliptic or spatulate, 5 mm. long; fruit red, hemispheric; drupelets numerous, puberulent, falling off together from the dry receptacle; stamens numerous, the filaments incurved.

TYPE LOCALITY: Northwest America.
DISTRIBUTION: Idaho.

28. **Rubus arizonicus** (Greene) Rydberg.

Batidaea arizonica Greene, Leaflets 1: 243. 1906.

Stems biennial, 3–10 dm. high, finely puberulent or the second year sometimes glabrate, more or less densely bristly, but rarely glandular, usually yellowish, rarely glaucous; leaves of the turions pinnately 5–7-foliolate; stipules setaceous; petioles, rachis, and midveins more or less bristly as well as densely puberulent; leaflets more or less distinctly double-serrate, with lanceolate sharp teeth, abruptly short-acuminate at the apex, acute or rounded at the base, green and glabrous or nearly so above, coarsely and densely white-tomentose beneath, the terminal one ovate or rhombic-ovate, 3–6 cm. long, with a petiolule 2 cm. long or less; lateral leaflets sessile and more lanceolate; leaves of the floral branches 3–5-foliolate; leaflets similar to those of the turions, but smaller and broader; flowers in small, mostly terminal corymbs; peduncles, pedicels, and hypanthium bristly and glandular-hispid as well as puberulent; sepals broadly ovate, abruptly caudate-acuminate, 6–7 mm. long, in fruit spreading; petals white, elliptic, shorter than the sepals; fruit red, 10–12 mm. broad, hemispheric; drupelets rather large and few, tomentulose.

TYPE LOCALITY: San Francisco Mountains, Arizona.
DISTRIBUTION: Mountains of Arizona, New Mexico, and northern Chihuahua.

29. **Rubus peramoenus** (Greene) Rydberg.

Batidaea peramoena Greene, Leaflets 1: 241. 1906.

Stems biennial, erect, 1–2 m. high, yellowish or brown, usually glabrous and shining, rather sparingly bristly, in age nearly unarmed; bristles slender; leaves of the turions pinnately 3–5-foliolate, green on both sides, only sparingly grayish-puberulent beneath when young; stipules setaceous, adnate to the petioles; petioles 4–7 cm. long, bristly but otherwise glabrous; terminal leaflet cordate or ovate, sometimes 3-lobed, 5–8 cm. long, sharply and doubly serrate, acuminate at the apex, light-green, thin, bristly on the veins beneath, its petiolule 1–3 cm. long; lateral leaflets sessile, obliquely ovate or ovate-lanceolate, somewhat smaller; leaves of the floral branches usually ternate, their leaflets usually smaller and broader, and somewhat more tomentulose beneath; racemes short, few-flowered; pedicels rather densely glandular-hispid and glandular-puberulent; hypanthium bristly and glandular; sepals elongate, lanceolate, 6–7 mm. long, caudate, attenuate, glandular-hispid and only slightly puberulent without; petals white, erect, spatulate, 6 mm. long; stamens numerous, erect, somewhat incurved; pistils numerous; fruit red, hemispheric, 12 mm. broad; drupelets numerous, puberulent, coherent, falling together from the dry receptacle; putamen 3 mm. long, strongly pitted.

TYPE LOCALITY: In meadows along banks of St. Mary's River, Idaho.
DISTRIBUTION: Eastern Oregon and Washington, northern Idaho, and western Montana, in lowlands.

30. **Rubus viburnifolius** (Greene) Rydberg.

Batidaea viburnifolia Greene, Leaflets 1: 242. 1906.

Stems biennial, yellowish or brownish, seldom purplish, more or less densely bristly with fine bristles, glabrous or puberulent, about 1 m. high; leaves of the turions often 5-foliolate, those of the floral branches 3-foliolate; stipules subulate, adnate to the petioles; petioles 1.5–5 cm. long, bristly, glandular-hispid and puberulent; leaflets green on both sides, or sparingly tomentulose beneath when young, more or less plicate, strongly veined beneath, incised-serrate, bristly on the veins beneath; terminal leaflet rhombic-ovate or ovate, 4–6 cm. long, on a petiolule 1–2 cm. long, the lateral ones somewhat smaller, obliquely ovate; racemes short, few-flowered, terminal and in the upper axils; pedicels densely glandular-hispid and somewhat bristly; hypanthium and calyx sparingly tomentose, and glandular-hispid; sepals lanceolate,

caudate-acuminate, 8–10 mm. long; petals white, erect, 5–7 mm. long; stamens numerous, incurved; pistils numerous; fruit hemispheric, about 15 mm. broad, red or yellowish; drupelets very numerous, comparatively small, falling together from the dry receptacle, pubescent; putamen 2–2.5 mm. long, strongly rugose.

TYPE LOCALITY: Selkirk Mountains.
DISTRIBUTION: Alaska to Mackenzie, Montana, and British Columbia; apparently also Wyoming and Utah.

Rubus spectabilis × viburnifolius. See under *R. spectabilis*.
Rubus macropetalus × viburnifolius. See under *R. macropetalus*.

31. **Rubus carolinianus** Rydberg, sp. nov.

Rubus strigosus Small, Fl. SE. U. S. 516, in part. 1903. Not *R. strigosus* Michx. 1803.

Stems biennial, 2–3 m. high, erect, densely bristly and hispid, most of the bristles tipped with small glands; leaves of the turions 3–7-foliolate, mostly 5-foliolate; stipules setaceous; petioles, rachis, and midveins copiously glandular-hispid and bristly; terminal leaflet ovate or ovate-lanceolate, double-serrate, long-acuminate at the apex, 5–8 cm. long, rounded or acute at the base, glabrate above, densely white-tomentose beneath; lateral veins 8–10 on each side; lateral leaflets similar but narrower, sessile; leaves of the floral branches mostly 3-foliolate, more incised with lanceolate teeth; inflorescence corymbiform, terminal, with a few flowers in the upper leaf-axils; peduncle, pedicels, hypanthium, and calyx densely glandular-bristly; sepals ovate, more than 1 cm. long, caudate-acuminate, the slender tip from half to fully as long as the sepal proper; petals elliptic, erect, about 5 mm. long; fruit red, hemispheric; drupelets many, pubescent.

Type collected on Andrews Bald, Swain County, North Carolina, July 25, 1891, *Beardslee & Kofoid* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Mountains of North Carolina.

32. **Rubus strigosus** Michx. Fl. Bor. Am. 1: 297. 1803.

Rubus pennsylvanicus Poir. in Lam. Encyc. **6**: 246. 1804.
Rubus idaeus Pursh, Fl. Am. Sept. 346. 1814. Not *R. idaeus* L. 1753.
Rubus idaeus strigosus Maxim. Bull. Acad. St. Pétersb. **17**: 161. 1872.
? *Rubus borealis* Spach; Focke, Abh. Nat. Ver. Bremen **4**: 147. 1874.
Batidaea strigosa Greene, Leaflets **1**: 238. 1906.
Batidaea heterodoxa Greene, Leaflets **1**: 239. 1906.
? *Batidaea amplissima* Greene, Leaflets **1**: 239. 1906.
Batidaea elegantula Greene, Leaflets **1**: 239. 1906.
Rubus idaeus aculeatissimus Rob. & Fern. Man. 486. 1908. Not *R. idaeus aculeatissimus* Regel & Tiling. 1858.
? *Rubus idaeus borealis* Spach; Focke, Bibl. Bot. **17**[72]: 209. 1911.

Stems biennial, usually brownish or reddish, sometimes glaucous, more or less bristly, but not villous or tomentose; leaves of the turions pinnately 3–5-foliolate; petioles and rachis often bristly, sparingly if at all glandular; petioles 4–7 cm. long; stipules linear-subulate; terminal leaflet broadly ovate, sometimes 3-lobed, double-serrate with ovate teeth, usually abruptly acuminate at the apex, rounded or cordate at the base, dark-green and sparingly short-hairy above, soon glabrate, usually densely white-tomentose beneath, 5–10 cm. long; lateral veins 10–15 on each side; petiolule 3 cm. long or less; lateral leaflets obliquely ovate, rounded at the base, otherwise similar; leaves of the floral branches 3-foliolate, rarely 5-foliolate, similar, but the leaflets smaller and usually narrower; inflorescence racemose or corymbiform, terminal or also in the upper axils, often drooping; peduncles and pedicels bristly and more or less glandular-hispid, but not tomentose; sepals glandular and hispid, only slightly tomentose without, white-tomentose within, lanceolate, long-acuminate, 6–7 mm. long, in fruit spreading; petals white, elliptic, erect, 5–6 mm. long; fruit hemispheric or nearly so, about 1 cm. broad, light-red, sweet or slightly acid; drupelets numerous, tomentose; putamen reticulate but not keeled on the back.

TYPE LOCALITY: Mountains of Pennsylvania.
DISTRIBUTION: Newfoundland to Virginia, Nebraska, and North Dakota.
ILLUSTRATIONS: Britt. & Brown, Ill. Fl. *f. 1894;* ed. 2, *f. 2291;* L. H. Bailey, Evol. Nat. Fr. *f. 57;* Card, Bush-Fruits *f. 58;* C. K. Schneid. Handb. Laubh. **1**: *f. 307 k.*

Rubus occidentalis × strigosus. See under *R. occidentalis*.
Rubus idaeus × strigosus. Resembling *R. idaeus* in leaf-form and in the presence of tomentum, but more or less glandular-hispid in the inflorescence. Garden hybrid.

33. **Rubus melanolasius** Focke, Abh. Nat. Ver. Bremen **13**: 469. 1896.

Rubus idaeus melanolasius Focke, Abh. Nat. Ver. Bremen **13**: 469. 1896.
Batidaea laetissima Greene, Leaflets **1**: 240. 1906.
(?) *Batidaea dacotica* Greene, Leaflets **1**: 240. 1906.
Batidaea unicolor Greene, Leaflets **1**: 241. 1906.
Batidaea Sandbergii Greene, Leaflets **1**: 242. 1906.

Stems biennial, erect, 0.5–1 m. high, purple, or yellow (*B. laetissima*), and often glaucous (*B. Sandbergii*), densely bristly and more or less glandular, especially when young, glabrous; leaves of the turions pinnately 3–5-foliolate; stipules subulate; petioles, rachis, and midveins usually densely bristly and glandular; petioles 5–8 cm. long; leaflets ovate or lanceolate, short-acuminate or acute at the apex, usually rounded or cuneate at the base, sharply double-serrate with lanceolate teeth, light-green and sparingly and minutely pubescent above, finely and usually densely white-tomentose, rarely almost green beneath (*B. unicolor*), 3–6 cm. long; terminal leaflet with petiolules 1–2 cm. long, sometimes 3-lobed and then subcordate at the base, the lateral ones narrower and subsessile; leaves of the floral branches similar, but always 3-foliolate and with shorter, acute or very rarely acuminate leaflets; flowers in small terminal and axillary short racemes; peduncles, pedicels, hypanthium, and calyx (externally) densely bristly and glandular-hispid; sepals ovate, abruptly caudate-acuminate, tomentose on the margins and within, in fruit spreading; petals white, elliptic, 5–6 mm. long, erect; stamens incurved; fruit red or purplish-red, hemispheric, 10–12 mm. broad, very sour; drupelets numerous, tomentose.

TYPE LOCALITY: Raised from seeds from northwestern America.
DISTRIBUTION: Mountains, from British Columbia and Alberta to Colorado, Utah, and Oregon.

Rubus leucodermis × melanolasius. See under *R. leucodermis*.

34. **Rubus subarticus** (Greene) Rydberg.

Rubus idaeus canadensis Richards. in Frankl. Journey 739. 1823.
Batidaea subarctica Greene, Leaflets **1**: 242. 1906.

Stem biennial, 3–10 dm. high, densely and finely villous or pilose, when young almost white-tomentose, as well as densely bristly, but scarcely at all glandular; leaves of the new stems 3–5-foliolate; stipules subulate; petioles, rachis, and midveins densely and finely pilose and more or less bristly; terminal leaflets petioluled, broadly ovate, abruptly acuminate at the apex, rounded or subcordate at the base, sometimes 3-lobed, 5–8 cm. long, double-serrate with ovate teeth, dark-green and glabrous or nearly so above, densely white-tomentose beneath; petiolule 1–3 cm. long; lateral leaflets obliquely ovate or ovate-lanceolate, rounded or obtuse at the base; flowers in small corymbs, at the ends of the branches and in the upper axils; peduncles, pedicels, hypanthium, and calyx more or less bristly, glandular-hispid, finely pilose and more or less purple-tinged; sepals broadly ovate, abruptly acuminate, white-tomentose within and on the margins, about 6 mm. long; petals white, elliptic, erect, 4–5 mm. long; fruit hemispheric, red; drupelets many, tomentose. (Perhaps a northern form of *R. strigosus*.)

TYPE LOCALITY: Porcupine River, Alaska.
DISTRIBUTION: Labrador, Newfoundland, Nova Scotia, and eastern Quebec to Michigan, British Columbia, Alaska, and Mackenzie; apparently also Nantucket Island, Massachusetts.

Rubus spectabilis × subarcticus. See under *R. spectabilis*.

35. **Rubus acalyphaceus** (Greene) Rydberg.

Batidaea acalyphacea Greene, Leaflets **1**: 240. 1906.
Batidaea subcordata Greene, Leaflets **1**: 240. 1906.
Batidaea cataphracta Greene, Leaflets **1**: 241. 1906.
Batidaea filipendula Greene, Leaflets **1**: 242. 1906.

Stem biennial, erect, 0.5–1 cm. high, brown or purple, in age exfoliating, tomentose or pilose as well as densely armed with strong bristles, which often are strong and more or less flattened, and could be called weak prickles; leaves of the turions pinnately 3–5-foliolate; stipules subulate; petioles, rachis, and midveins usually densely bristly or prickly, and glandular as well as pubescent; leaflets ovate or the terminal subcordate, rather prominently veined and plicate, incisedly double-toothed, abruptly acuminate, light-green and pilose above, densely white-tomentose beneath, 2–4 cm. long; leaves of the floral branches always 3-foliolate with

shorter leaflets; flowers in short few-flowered racemes; pedicels densely glandular-hispid and bristly; sepals ovate, abruptly caudate-acuminate, tomentose on both sides and bristly without; petals white, erect, about 5 mm. long; stamens incurved; fruit red, acid, hemispheric; drupelets numerous, tomentose. (Perhaps not distinct from *R. melanolasius*.)

TYPE LOCALITY: Silver Gate, Yellowstone National Park.
DISTRIBUTION: Mountains of Montana, Wyoming, Idaho, and Nevada.

36. **Rubus Egglestonii** Blanchard, Torreya 7: 140. 1907.

Rubus idaeus anomalus Fernald, Rhodora **2**: 195. 1900. Not *R. idaeus anomalus* Arrh. 1839.

Stems biennial, 2–3 dm. high, sparingly and finely bristly, reddish-strawcolored; leaves of the turions usually 3-foliolate; stipules setaceous; petioles 2–3 cm. long; leaflets sessile, rounded, double-toothed, with broad mucronulate teeth, glabrous and green above, white-tomentose beneath; leaves of the flowering branches simple, more or less distinctly 3-lobed, reniform in outline, 2–3 cm. long, 3–4 cm. broad; flowers 2–4 in small terminal corymbs; peduncles, pedicels, hypanthium, and calyx glandular-hispid; sepals elliptic, obtuse or merely mucronulate, tomentose within, 3–4 mm. long; petals white, elliptic, about as long as the sepals; fruit rare, hemispheric, of rather few tomentose drupelets.

TYPE LOCALITY: Cavendish, Vermont.
DISTRIBUTION: Mountains of Vermont.
ILLUSTRATION: Rhodora **2**: *pl. 20* (as *R. idaeus anomalus*).

IX. **Urticifolii.** Tall perennial shrubs; stem densely covered with long non-glandular hairs and few curved prickles; leaves digitately 3–5-foliolate, with petioluled leaflets; stipules setaceous; leaflets in ours densely pubescent, finely and sharply serrate and with 15–25 lateral veins on each side; flowers paniculate; fruit of numerous drupelets not separating as a cap from the receptacle.

37. **Rubus trichomallus** Schlecht. Linnaea **13**: 268. 1839.

Rubus urticaefolius Focke, Abh. Nat. Ver. Bremen **4**: 149. 1874. Not *R. urticaefolius* Poir. 1804.
Rubus costaricanus Kuntze, Rev. Gen. 220, in part. 1891.

Stem perennial, several meters high, 8–15 mm. thick, somewhat round-angled, densely pubescent with grayish short hairs and copiously bristly with long, brown, non-glandular hairs, sparingly armed with recurved flat prickles with pubescent bases; some leaves of the stem and shoots digitately quinate, the rest ternate; stipules subulate, 5–8 mm. long; petioles 5–15 cm. long, pubescent, setose, and densely prickly; petiolules 2–7 cm. long; leaflets ovate, short-acuminate at the apex, obtuse, rounded or subcordate at the base, sharply and finely double-serrate, 7–12 cm. long, densely pubescent on both sides, dark-green and almost velutinous above, yellowish or grayish-subtomentose beneath; most of the leaves, especially those of the flowering stems, ternate, otherwise similar; petiolule of the middle leaflet 2–3 cm. long, those of the lateral leaflets 5–10 mm. long; panicles terminal and axillary, with short ascending branches, dense; bracts ovate-lanceolate, tomentose; sepals lanceolate, about 5 mm. long, with a short subulate acumination, appressed to the young fruit, but spreading in age, tomentose and sparingly setose; petals obovate, scarcely exceeding the sepals; fruit small, reddish but when fully ripe almost black; drupelets glabrous.

TYPE LOCALITY: Hacienda de la Laguna, Vera Cruz.
DISTRIBUTION: From southern Mexico to Panama and Colombia.

38. **Rubus ferrugineus** Wikst. Sv. Vet.-Akad. Handl. **1827**: 68. 1828.

Stems perennial, 4–6 m. high, slightly short-villous, densely setose with brown, non-glandular bristles and armed with reddish, recurved, flattened prickles puberulent at their bases; leaves ternate or quinate; stipules setaceous, 4–8 mm. long; petioles, petiolules, and midveins more or less prickly, as well as pubescent and setose; petioles 5–8 cm. long; petiolule of the middle leaflet 1–2 cm. long, those of the outer leaflets 5–10 mm. long; leaflets elliptic-ovate, acuminate at the apex, rounded at the base, sharply double-serrate, green and sparingly pubescent or glabrate above, grayish-tomentose beneath, 5–12 cm. long; panicles pyramidal, terminal, and also axillary, with short, prickly and setose, more or less spreading branches;

bracts linear, lanceolate, or subulate, tomentose; sepals ovate, acute, tomentose, rarely if at all setose; petals white, obovate, a little surpassing the sepals; fruit ovoid, about 1 cm. long, black; achenes many, glabrous.

TYPE LOCALITY: Guadeloupe.
DISTRIBUTION: Guadeloupe.

X. **Adenotrichi.** Tall perennial shrubs or vines resembling the preceding group in habit; stem more or less covered by glandular hairs; leaves digitately 3–5-foliolate with finely serrate, mostly petioluled thick leaflets; lateral veins on each side 15–20; fruit mostly black, not separating from the receptacle.

39. **Rubus costaricanus** Liebm. Vidensk. Meddel. **1852**: 159. 1853.

Stems perennial, subterete or obtusely angled, 3 m. high or more, densely grayish short-pilose, more or less glandular-setose with short hairs, scarcely more than twice as long as the pubescence, armed with scattered, curved prickles, which are 4–6 mm. long, pubescent and strongly flattened below; leaves digitately quinate, or the upper ternate; stipules linear-setaceous, 5–8 mm. long; petioles 5–10 cm. long, their pubescence and armature the same as that of the stem; leaflets broadly ovate, acuminate at the apex, rounded or rarely subcordate at the base, sharply double-serrate, dark-green and sparingly pubescent, in age glabrate above, grayish-velutinous beneath, rather firm, with strong veins beneath; middle leaflet 6–10 cm. long, on a petiolule 2–4 cm. long; panicle terminal, rarely axillary, pyramidal; bracts lanceolate, acute, grayish-tomentose; peduncle, its branches, pedicels, and hypanthium tomentose as well as glandular-hispid; sepals ovate, acute or short-acuminate, tomentose, rarely if at all glandular, reflexed in fruit; petals obovate, emarginate, glabrous; fruit hemispheric; drupelets 10–20, large, ovate, glabrous.

TYPE LOCALITY: Cartago, Costa Rica.
DISTRIBUTION: Costa Rica and Panama.

40. **Rubus Verae-Crucis** Rydberg, sp. nov.

Stem perennial, 5–7 mm. high, erect, terete, densely covered by a grayish tomentum and short glandular hairs, in age sometimes glabrous, armed with a few short recurved prickles; leaves 5-foliolate or on the floral branches 3-foliolate; stipules subulate, about 5 mm. long; petioles, petiolules, and midribs rusty-tomentose, prickly, and somewhat glandular; petioles 6–8 cm. long; leaflets lanceolate, abruptly long-acuminate at the apex, rounded or subcordate at the base, 5–10 cm. long, dark-green and sparingly pilose or glabrate above, nearly glabrous beneath, except the veins; petiolule of the terminal leaflet 3–5 cm. long, those of the lateral ones 1–3 cm. long; inflorescence many-flowered, racemiform; peduncles and pedicel tomentose and with short glandular hairs; sepals ovate, tomentose on both sides, 5 mm. long, acute or apiculate; petals white, obovate, about 1 cm. long.

Type collected at San Miguel del Soldado, Vera Cruz, April 20, 1899, *Pringle 8177* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Vera Cruz.

41. **Rubus adenotrichos** Schlecht. Linnaea **13**: 267. 1839.

Rubus costaricanus longesetosus Kuntze, Rev. Gen. 220. 1891.

Stem perennial, up to 6 m. high, densely covered with glandular-tipped reddish setae, also densely short-pilose, and with scattered prickles, which are 3–5 mm. long, strongly curved, flattened and pubescent at the base; leaves digitately 5-foliolate, or the upper 3-foliolate; stipules 5–8 mm. long, subulate or narrowly linear-lanceolate, attenuate; petioles 5–15 cm. long, densely short-pilose and copiously glandular-setose, with rather numerous prickles; terminal leaflet ovate, elliptic, oval, or obovate, acuminate at the apex, subcordate or rounded at the base, sharply and finely double-serrate, 5–10 cm. long, 3–5 cm. wide, sparingly pilose above, densely so beneath, more or less glandular-hispid and prickly on the midvein and the petiolule, which is 2–4 cm. long; lateral leaflets similar, but somewhat smaller, less subcordate at the base and with shorter petiolules; flowers in many-flowered panicles, which are terminal and also lateral in the upper leaf-axils; peduncles, branches, pedicels, and hypanthium densely

glandular-hispid and pilose; sepals ovate, abruptly subulate-acuminate, white-pilose and glandular; petals white or pink, obovate, about 1 cm. long; fruit ovate, red or black when ripe, about 10–12 mm. thick; drupelets numerous, small, ovate, glabrous; style persistent, terminal.

TYPE LOCALITY: In thickets of Jalapa, Vera Cruz.
DISTRIBUTION: In woods, from central Mexico to Costa Rica.

42. **Rubus irasuensis** Liebm. Vidensk. Meddel. **1852**: 160. 1853.

Stems perennial, slender, subterete, densely fuscous-pubescent, with short, dark-purple, glandular bristles, sparingly prickly with flat recurved prickles puberulent at their bases; leaves digitate-quinate or the upper ternate; stipules linear, pubescent; petioles 4–5 cm. long, pubescent, glandular-setose and prickly; leaflets oval, acuminate at the apex, obtuse at the base, sharply double-serrate, dark-green above, puberulent above, densely fuscous-pubescent below, the midvein somewhat prickly; middle leaflet somewhat larger, 4–5 cm. long, its petiolule 1.5–2 cm. long; panicles 1–1.5 cm. long, terminal, and lateral, unarmed, with spreading branches; bracts linear-lanceolate, acute; sepals acute, ovate, reflexed; petals obovate, usually pinkish, longer than the sepals, often emarginate; receptacle cylindric; fruit 1–1.5 cm. long, 8–9 mm. thick; drupelets small, numerous, ovoid, pubescent at the apex.

TYPE LOCALITY: Volcano Irasu, Costa Rica.
DISTRIBUTION: Guatemala to Costa Rica.

43. **Rubus miser** Liebm. Vidensk. Meddel. **1852**: 156. 1853.

Stems perennial, subterete, slightly flexuose, densely fuscous-pubescent and with recurved, rigid, glandular bristles, and armed with compressed, recurved prickles pubescent at their bases; leaves ternate (always?); stipules small, setaceous, pubescent and glandular-setose; petioles about 5 cm. long, as well as the midveins of the leaflets with recurved spines; leaflets coriaceous, nearly equal in size, elongate, ovate, acuminate at the apex, obtuse at the base, sharply serrulate with spreading teeth, dark-green and puberulent above, densely fuscous-pubescent beneath, about 7 cm. long, 4 cm. wide; petiolule of the middle leaflet 1–2.5 cm. long, those of the lateral ones about 1 cm. long; raceme terminal, few-flowered, with spreading branches; bracts linear-lanceolate, entire or 3-fid, villous and glandular-setose; sepals ovate-lanceolate, acuminate, densely grayish-tomentose and glandular-setose, at last reflexed; petals shorter than the sepals, rounded-obovate, often emarginate; receptacle cylindric, obtuse; drupelets numerous, glabrous.

TYPE LOCALITY: Cartago, Costa Rica.
DISTRIBUTION: Costa Rica and Guatemala.

XI. **Floribundi.** Perennial shrubs with mostly erect stems, these neither long-hairy nor decidedly glandular (except in the inflorescence), usually armed with curved prickles; leaves digitately 3–5-foliolate; stipules subulate or setaceous; leaflets subcoriaceous, sometimes evergreen, sharply serrate, usually finely so; lateral veins 10–20 on each side; inflorescence mostly paniculate, leafy, at the ends of the stem and branches, rarely prickly; fruit not separating from the receptacle, the drupelets rarely falling off separately.

44. **Rubus philyrophyllus** Rydberg.

Rubus tiliaceus Liebm. Vidensk. Meddel. **1852**: 161. 1853. Not *R. tiliaceus* Smith. 1815.
Rubus tiliaefolius Focke, Abh. Nat. Ver. Bremen **4**: 159. 1874. Not *R. tiliaefolius* Weihe. 1825.

Stem perennial, 1–2 cm. thick, subterete, densely pubescent with some short glandular hairs intermixed and armed with short, straight, pubescent prickles; leaves of the main stem ternate (always?); stipules linear, acute, pubescent; petioles, petiolules, and midveins prickly as well as pubescent; petiole about 7 or 8 cm. long, densely and softly pubescent, glandular-pilose, and with small recurved prickles; median leaflet 7–8 cm. long, 6–7 cm. broad, softly pubescent on both sides, cordate, short-acuminate, or subrotund, sharply serrulate, its petiolule 2.5–3 cm. long; lateral leaflets oblique at the base, somewhat smaller, subsessile or with petiolules 1–4 mm. long; leaflets of the floral branches cordate-ovate or ovate, sharply double-serrate, 5–6 cm. long, 3.5 cm. wide; panicle terminal, small, few-flowered, with straight prickles,

densely tomentose and glandular-setose; bracts setaceous; pedicels long, curved; sepals 6 mm. long, lanceolate, caudate-acuminate, reflexed, grayish-villous, glandular-setose; petals shorter than the sepals, obovate; receptacle villous; drupelets very small, densely villous.

TYPE LOCALITY: Chinautla, Puebla.
DISTRIBUTION: Known only from the type locality.

45. **Rubus Liebmannii** Focke, Abh. Nat. Ver. Bremen **4**: 158. 1874.

Stems perennial, 2–3 m. high; shoots erect, at last arcuate-drooping, obtusely angled, sparingly pilose and armed with somewhat compressed curved spines; leaves ternate, deciduous; petioles pilose, prickly, 4–6 cm. long; stipules minute, setaceous, 8–10 mm. long; leaflets irregularly, finely, and sharply serrate, green and pubescent on both sides, the terminal one ovate or elliptic, acuminate, with 8–10 veins on each side, 7–10 cm. long, its petiolule 2–3 cm. long; lateral leaflets 4–5.5 cm. long, with petiolules about 2 mm. long; floral branches densely pilose and prickly, the prickles small and recurved; panicles terminal and axillary, short, nodding; branches and pedicels tomentose and with short glands; calyx cinereous-tomentose, glanduliferous; sepals spreading or reflexed; petals oval, rose-colored; fruit 1 cm. long, black; drupelets numerous, tomentulose.

TYPE LOCALITY: Described from cultivated specimens raised from seeds collected on the peak of Zempoaltepec, Oaxaca.
DISTRIBUTION: Southern Mexico.

46. **Rubus coriifolius** Liebm. Vidensk. Meddel. **1852**: 157. 1853.

Rubus floribundus Schlecht. Linnaea **13**: 266. 1839. Not *R. floribundus* Weihe. 1821.

Stems perennial, 1.5–2 m. high; shoots subterete, pubescent, rarely with small prickles; stems somewhat angled, with larger, recurved, compressed prickles, puberulent at the base; leaves coriaceous, persistent, those of the stem digitately quinate; stipules subsetaceous, 4–5 mm. long, pubescent; petioles fuscous-pubescent, rarely with intermixed glandular hairs, as well as the petiolules and the midveins prickly, 5–7 cm. long; leaflets elongate-ovate, 5–10 cm. long, obtuse at the base, acuminate at the apex, sharply double-serrate, above dark-green, puberulent, below densely fuscous-pubescent, with prominent veins; petiolule of the middle leaflet 3–4 cm. long, those of the lateral ones about 2.5 cm. and of the lowermost 4–6 mm. long; leaves of the floral branches ternate; leaflets 5–7 cm. long, 2.5–3 cm. wide; petiolule of the median leaflet 12–16 mm. long, those of the lateral ones 2–5 mm. long; panicles terminal and axillary, the former often 3 dm. long; branches spreading, tomentose, often with glandular hairs intermixed; bracts lanceolate, acute, the lower often 3-fid; sepals thick, ovate, acuminate or acute, 3-nerved, tomentose, at last reflexed; petals obovate, longer than the sepals, rose-colored or white; fruit small, red, or when ripe nearly black, glabrous; drupelets 8–20, ovoid, glabrous, gradually falling apart separately.

TYPE LOCALITY: Jalapa, Vera Cruz.
DISTRIBUTION: Southern Mexico.

47. **Rubus Schiedeanus** Steud. Nom. Bot. ed. 2. **2**: 479. 1841.

Rubus dumetorum Schlecht. Linnaea **13**: 267. 1839. Not *R. dumetorum* Weihe. 1824.

Stems perennial, subterete or obtusely angled, puberulent or short-pilose, armed with small recurved pubescent prickles; leaves coriaceous, persistent, digitately quinate or ternate; stipules linear-setaceous, pubescent; petioles, petiolules, and midveins pubescent and armed with recurved prickles; petioles 5–8 cm. long; leaflets 4–10 cm. long, coriaceous, 2–6 cm. wide, persistent, dark-green and glabrous above, puberulent beneath, elliptic, obtuse at the base, abruptly acuminate at the apex, serrulate, or sometimes nearly entire; petiolule of the median leaflet 1–4 cm. long, those of the outermost leaflets 2–6 mm. long; lateral veins 9–12 on each side; panicles terminal and axillary, densely villous, sometimes prickly; bracts lanceolate, the lower often 3-fid; sepals ovate, obtuse, 3-nerved, grayish-tomentose; petals obovate-cuneate,

white, 10–14 mm. long, much exceeding the sepals; receptacle cylindric, obtuse; fruit black; drupelets numerous, glabrous.

TYPE LOCALITY: In thickets of Jalapa, Vera Cruz.
DISTRIBUTION: Southern Mexico to Guatemala.

48. **Rubus superbus** Focke; Donn. Smith, Bot. Gaz. **18**: 201. 1893.

Stems perennial, tomentose-pubescent, sparingly and minutely spiny; leaves ternate; stipules setaceous, small; leaflets subcoriaceous, sharply serrate, pilose on the veins on both sides, otherwise glabrous, shining above, dull beneath, elliptic, long-acuminate at the apex, rounded at the base, with 8–10 lateral veins on each side; lateral leaflets somewhat smaller; inflorescence ample, elongate, subtended by one or two ternate or unifoliolate leaves, racemiform or the lower branches 3-flowered; peduncle and pedicels tomentose-hirsute, minutely prickly; bracts small, lanceolate, tomentose; sepals ovate, gray-tomentose on both sides; petals large, obovate, unguiculate, twice or three times as long as the sepals; receptacle hirsute; drupelets numerous.

TYPE LOCALITY: San Miguel Uspantán, Quiché, Guatemala.
DISTRIBUTION: Known only from the type locality.

49. **Rubus macrogongylus** Focke, Repert. Sp. Nov. **9**: 236. 1911.

Stem perennial, appressed grayish-tomentose, armed with moderately curved prickles; leaves quinate and ternate; leaflets oblong, acuminate at the apex, rounded, or the terminal one emarginate at the base, regularly mucronate-serrate or -serrulate, tomentose-puberulent above, paler and appressed-tomentulose beneath, subsericeous on the veins; lateral veins about 10; terminal leaflet with long and the lateral smaller ones with short petiolules; inflorescence terminal, on short, somewhat spreading branches, few-flowered, unarmed, tomentose, and with some short-stipitate glands; sepals ovate, concave, mucronate, grayish-tomentose without, white-tomentose within, reflexed in anthesis, spreading in immature fruit; petals ovate, longer than the sepals; fruit black, oblong or cylindric-oblong; drupelets numerous, glabrous.

TYPE LOCALITY: Central Mexico.
DISTRIBUTION: Central Mexico to Guatemala.

50. **Rubus Smithii** Rydberg.

Rubus coriifolius Focke; Donn. Smith, Enum. Pl. Guat. **2**: 19; hyponym. 1891. Not *R. coriifolius* Liebm. 1853.
Rubus poliophyllus Focke; Donn. Smith, Bot. Gaz. **18**: 202. 1893. Not *R. poliophyllus* Kuntze. 1879.

Stems perennial, terete, tomentulose-puberulent, armed with recurved pubescent prickles strongly compressed at the base; lower leaves quinate, the upper ternate or the uppermost unifoliolate; stipules small, setaceous; petioles and petiolules more or less prickly and tomentose; petioles 5–8 cm. long; leaflets subcoriaceous, sharply serrate, puberulent above with branched hairs, grayish or brownish-tomentose beneath, with 8–10 lateral veins on each side, oval or elliptic, obtuse at the base, abruptly acuminate, the larger 5–8 cm. long; panicles terminal and axillary, with divaricate branches, tomentulose, and with occasional glands or bristles; bracts lanceolate, the lower often 3-fid, tomentose; sepals ovate, short-acuminate, tomentose on both sides; petals small, scarcely longer than the sepals, white; receptacle pilose; fruit hemispheric, black; drupelets about 20, glabrous.

TYPE LOCALITY: San Rafael, Zacatepeques, Guatemala.
DISTRIBUTION: Mexico to Guatemala.

51. **Rubus Uhdeanus** Focke, Abh. Nat. Ver. Bremen **4**: 159. 1874.

Stems perennial, angled, thinly pubescent and also with some glandular hairs and small curved prickles; leaves ternate; stipules small, linear; petioles 4–8 cm. long, pubescent and prickly; leaflets membranous, subcordate at the base, puberulent above, soon glabrate, pale and softly pilose beneath, regularly serrate, acuminate; median leaflet 5–9 cm. long, with a petiolule 1–2.5 cm. long; lateral veins 10–12 on each side; lateral leaflets 3.5–4.5 cm. long, their

petiolules 5–10 mm. long; panicles elongate, narrow, with the lower branches ascending; bracts ovate-lanceolate; branches and peduncles inconspicuously pilose, sparsely prickly, but densely glandular; sepals grayish-tomentose, unarmed, at last spreading, 5 mm. long; petals white or pinkish, 8 mm. long, oblong or oblanceolate; fruit somewhat elongate, black, 10–12 mm. long; drupelets many, glabrous.

TYPE LOCALITY: Mexico.
DISTRIBUTION: Southern Mexico.

52. **Rubus Pittieri** Rydberg, sp. nov.

Stem perennial, angled, villous-tomentose, armed with short, more or less recurved prickles, 3–5 mm. long, slightly if at all compressed; leaves quinate or on the upper part ternate; stipules subulate, 8–10 mm. long; petioles, petiolules, and midveins villous-tomentose and more or less prickly; petioles 5–10 cm. long; leaflets firm, oval to elliptic-lanceolate, 5–10 cm. long, acuminate at the apex, acute, rounded or subcordate at the base, closely and sharply serrate with irregular or double, lanceolate teeth, pilose above, densely villous, almost velutinous beneath; lateral veins rather prominent on the lower surface, 12–15 on each side; inflorescence dense, leafy-bracted, densely shaggy-velutinous, as well as somewhat glandular and somewhat prickly; flowers numerous; sepals ovate, apiculate, about 6 mm. long, tomentose on both sides; petals white, 7–8 mm. long, oval; fruit small, globose, purple; drupelets 12–20; putamen about 3 mm. long, strongly reticulate.

Type collected on the paramos of the Abejonal, Costa Rica, May 4, 1890, *Pittier 2281* (herb. John Donnell Smith).
DISTRIBUTION: Known only from the type locality; there collected also by *Tonduz.*

53. **Rubus abundus** Rydberg.

Rubus floribundus H.B.K. Nov. Gen. & Sp. **6**: 219. 1823. Not *R. floribundus* Weihe. 1821.

Stems perennial, more or less angled, softly villous-tomentose when young, with few recurved spines; leaves of the stem quinate; petioles about 8 cm. long, as well as the petiolules and midveins villous-tomentose and with strong recurved prickles; leaflets oblong-ovate or ovate, acuminate at the apex, rounded or cordate at the base, sharply serrate, membranous, appressed-pubescent on both sides, dark-green above, paler and subcanescent beneath; middle leaflet 5–10 cm. long, 3–4 cm. wide, half longer than the petiolule, the lateral gradually smaller and short-petiolulate, the outer 3–4 cm. long; leaves of the floral branches ternate; leaflets ovate or obovate, acute, smaller and with shorter petiolules than in the quinate leaves, otherwise similar; panicle terminal, somewhat leafy, 1–1.5 cm. long; branches villous-tomentose, grayish; bracts oblong, acute, villous-tomentose; sepals ovate-oblong, acuminate, villous-sericeous without, sericeous within; petals elliptic, obtuse, white or rose-colored, spreading; fruit black, subglobose; drupelets numerous, glabrous.

TYPE LOCALITY: Andes of Loxa, Ecuador.
DISTRIBUTION: Mexico to Bolivia.
ILLUSTRATION: H.B.K. Nov. Gen. & Sp. *pl. 557.*

54. **Rubus laxus** Rydberg, sp. nov.

Rubus floribundus f. *laxiflora* Focke; Donn. Smith, Enum. Pl. Guat. **4**: 54; hyponym. 1895. Not *R. laxiflorus* Müll. & Lef. 1859.
Rubus floribundus f. *pauciflora* Focke; Donn. Smith, Enum. Pl. Guat. **4**: 54; hyponym. 1895. Not *R. pauciflorus* Wall. 1824.

Stem perennial, slender, terete, finely velutinous, armed with few very small hooked prickles only 1–3 mm. long; leaves mostly quinate; stipules subulate, 3–5 mm. long; petioles, petiolules, and midveins velutinous and armed with small prickles; leaflets lance-elliptic, more or less acuminate at the apex, rounded or rarely subcordate at the base, 3–6 cm. long, dark-green, pilose above, velutinous beneath, finely and closely serrate, with lanceolate sharp teeth directed forward; lateral veins 12–18 on each side; inflorescence lax, terminal or from the upper axils, 2–3 dm. long, 1–1.5 dm. wide; branches slender, divergent, tomentulose; sepals ovate, apiculate, 5–6 mm. long, tomentose on both sides; petals slightly exceeding the sepals, white; fruit black, globose; drupelets rather few, glabrous.

Type collected at Zamorora, Santa Rosa, Guatemala, May 1893, *Heyde & Lux* (herb. John Donnell Smith).
DISTRIBUTION: Guatemala.

55. **Rubus jamaicensis** L. Mant. 75. 1767.

Stems perennial, in age glabrous, climbing or trailing, 3–5 m. long, armed with more or less flattened, recurved, glabrous prickles; young branches more or less grayish villous-tomentulose; leaves ternate or those of the stem or vigorous branches quinate; stipules setaceous or linear-subulate; petioles 5–10 cm. long, tomentulose or glabrate, with recurved prickles; leaflets elliptic-ovate or ovate, or rarely the terminal one cordate, 5–12 cm. long, acuminate at the apex, acute or rounded at the base, sharply and closely serrate, dark-green and sparingly pubescent, or in age glabrate above, pale, silky-canescent, and tomentulose beneath; petiolule of the median leaflet 1–2.5 cm. long, those of the lateral ones 2–8 mm. long; panicles terminal and axillary, ample, many-flowered; branches more or less densely tomentose, divergent; bracts setaceous or linear-subulate, tomentose; sepals lanceolate, gradually acuminate, 5–7 mm. long; petals white or pink, elliptic-obovate, exceeding the sepals; fruit hemispheric, black when ripe, 8–10 mm. in diameter; drupelets many, glabrous, falling off separately.

TYPE LOCALITY: Jamaica.
DISTRIBUTION: Jamaica and Santo Domingo.
ILLUSTRATION: Sloane, Hist. Jam. *pl. 213, f. 1.*

56. **Rubus alpinus** Macfad. Fl. Jam. **2**: 7. 1850.

Rubus guyanensis Focke, Abh. Nat. Ver. Bremen **4**: 160. 1874.

Stems perennial, terete, purplish, reclining over bushes, at first finely pubescent, soon glabrate with recurved prickles; leaves ternate; stipules setaceous; petioles 3–5 cm. long, sparingly prickly; leaflets elliptic, acuminate at the apex, rounded or acute at the base, unequally and sharply serrate, green and glabrous on both sides or sparingly pubescent beneath, mainly on the veins, 4–8 cm. long; petiolule of the median leaflet 1–2 cm. long, those of the lateral ones 3–5 mm.; lateral veins 10–13 on each side; panicles terminal and axillary, narrow; peduncles somewhat pubescent; bracts lanceolate, purplish; sepals tomentose, lanceolate, cuspidate-acuminate, appressed to the fruit; petals obovate, 5–6 mm. long, exceeding the sepals, white; fruit rounded-ovate, dark-purple, 6 mm. long, 5 mm. broad; drupelets glabrous, numerous, falling off separately.

TYPE LOCALITY: Jamaica.
DISTRIBUTION: Jamaica; Costa Rica and Guatemala; also in Colombia, Venezuela, and Guiana.

57. **Rubus vulcanicola** (Donn. Smith) Rydberg.

Rubus guianensis vulcanicola Donn. Smith, Bot. Gaz. **23**: 243. 1897.

Stem perennial, angled, slightly tomentose when young, soon glabrate, purplish, armed with short recurved prickles about 5 mm. long; leaves mostly quinate; stipules setaceous, or subulate, 5–10 mm. long; petioles, petiolules, and midveins armed with strongly curved prickles, slightly tomentulose or glabrate; leaflets elliptic, 3–10 cm. long, dark-green, shining and glabrate above, duller and slightly pubescent on the veins beneath, finely and closely serrate, with lanceolate teeth, acuminate at the apex, acute at the base; lateral veins 15–18 on each side; inflorescence terminal, sparingly tomentulose and more or less prickly; sepals ovate, apiculate, 4–5 mm. long, tomentose on both sides; petals pink or rose-colored, 7–8 mm. long; fruit black, 7–10 mm. long; drupelets 20–50, small, glabrous; putamen slightly reticulate.

TYPE LOCALITY: Rancho del Achiote, southwest flank of Volcan Poas, Costa Rica.
DISTRIBUTION: Costa Rica.

XII. **Sapidi.** Trailing or reclining species with subcoriaceous, digitately 3–5-foliolate leaves, and prickly stem and inflorescence; leaflets sharply serrate, with 7–15 lateral veins on each side; stipules subulate or setaceous; flowers mostly large, in leafy, usually flat-topped panicles; drupelets rather many, large, not separating from the receptacle.

58. **Rubus Nelsonii** Rydberg, sp. nov.

Stems perennial, reclining, 2–4 m. long, terete, purplish, more or less pubescent when young, armed with rather weak small prickles; leaves quinate or the upper ternate; stipules subulate, 5–7 mm. long; petioles, petiolules, and midveins pubescent and armed with recurved

prickles; leaflets lance-ovate, long-acuminate, 3–7 cm. long, sharply serrate, with lanceolate teeth, rounded or acute at the base, soon glabrate above, sparingly pubescent beneath; petiolule of the terminal leaflet about 1 cm. long, those of the lateral ones 1–2 mm. long or obsolete; lateral veins 7–10 on each side; inflorescence rather few-flowered, leafy-bracted, pubescent and more or less prickly; sepals ovate-lanceolate, 7–8 mm. long, apiculate, tomentose on both sides; petals white, elliptic-obovate, 10–12 mm. long; fruit subglobose, dark-purple; drupelets 15–20, large and pulpy; putamen 3 mm. long and nearly as broad, strongly reticulate.

Type collected on the west slope of Zempoaltepec, Oaxaca, Mexico, July 5–13, 1894, *E. W. Nelson 580* (U. S. Nat. Herb.).

59. **Rubus amplior** Rydberg, sp. nov.

Rubus sapidus grandifolius Focke; Donn. Smith, Enum. Pl. Guat. 2: 19; hyponym. 1891. Not *R. grandifolius* Salisb. 1797.

Stem perennial, terete, purplish, villous-tomentose when young, soon glabrate, armed with numerous, slightly recurved prickles 3–5 mm. long; leaves mostly ternate; stipules subulate, about 5 mm. long; petioles, petiolules, and midveins rather strongly armed with recurved prickles, as well as villous; petioles about 5 cm. long; leaflets ovate, short-acuminate at the apex, rounded or rarely subcordate at the base, serrate, with ovate apiculate teeth, dark-green and sparingly pilose above, coarsely velutinous beneath, 5–10 cm. long; lateral veins 7–10 on each side; inflorescence rather few-flowered, leafy-bracted, villous-tomentose as well as armed with recurved prickles; sepals ovate, apiculate, tomentose on both sides, about 7 mm. long; petals white, elliptic, 10–12 mm. long; fruit dark-purple, globose; drupelets 8–12, large and pulpy; putamen 2.5 mm. long, not strongly reticulate.

Type collected at Santa Rosa, Baja Verapaz, Guatemala, September 1888, *H. von Türckheim 1424* (herb. John Donnell Smith).

60. **Rubus Palmeri** Rydberg, sp. nov.

Stem perennial, reclining over bushes or walls, 2–4 m. long, angled, villous, tomentose, or in age glabrate, armed with strongly recurved prickles 5–8 mm. long; leaves 5-foliolate or the upper 3-foliolate; petioles, petiolules, and midveins villous and strongly armed with recurved prickles; stipules subulate, 8–10 mm. long; leaflets rounded-oval, or obovate, abruptly short-acuminate at the apex, rounded or the terminal one cordate at the base, 5–10 cm. long, light-green, sharply and irregularly serrate, with ovate teeth, sparingly pilose above, rather densely villous beneath; lateral veins about 10 on each side; inflorescence rather many-flowered, often leafy-bracted, villous-tomentose, somewhat glandular, and armed with recurved prickles; sepals ovate, apiculate, tomentose on both sides, about 7 mm. long; petals white, obovate, 12–15 mm. long; fruit dark-purple, large, juicy; drupelets glabrous, 20–35; putamen 3 mm. long, strongly reticulate.

Type collected at San Ramón, Durango, April 21–May 18, 1906, *Palmer 78* (herb. N. Y. Bot. Gard.).

DISTRIBUTION: Durango, Tepic, and Jalisco.

61. **Rubus sapidus** Schlecht. Linnaea **13**: 269. 1839.

Stems probably perennial, glabrous or villous when young, round-angled, armed with strong retrorse prickles, at length reclining and covering walls and bushes; leaves of the stems 5-foliolate; stipules setaceous, 1 cm. long; petioles. petiolules, and midveins villous and rather densely armed with recurved prickles; leaflets thick, subcoriaceous, dark-green and sparingly pilose but soon glabrate above, densely soft-pubescent beneath, closely and sharply serrate, with the teeth strongly directed forward; terminal leaflet broadly ovate, acuminate, 4–7 cm. long, its petiolule about 2 cm. long; lateral leaflets ovate and subsessile; floral branches 1–3 dm. long; leaves 1–3-foliolate; leaflets similar to those of the stem, but more obovate and merely acute; inflorescence corymbiform, leafy-bracted, densely villous and strongly armed with recurved prickles; sepals about 6 mm. long, mucronate, white-tomentose on both sides; petals white, broadly obovate or orbicular, about 1 cm. long; fruit globose; drupelets about 30; putamen strongly reticulate, 2 mm. long.

TYPE LOCALITY: Thickets of Jalapa, Vera Cruz.
DISTRIBUTION: Vera Cruz.

62. **Rubus Tuerckheimii** Rydberg, sp. nov.

Stems perennial, apparently reclining over bushes, terete, purple, sparingly pilose or in age glabrous, reddish, armed with small recurved prickles; leaves mostly 3-foliolate; stipules subulate-setaceous, 5–8 mm. long; petioles, petiolules, and midveins pilose and armed with recurved prickles; petioles 5–6 cm. long; leaflets broadly oval, abruptly short-acuminate at the apex, rounded or subcordate at the base, rather regularly serrate, with broad, ovate, apiculate teeth, pilose above, villous-tomentose beneath, 6–10 cm. long; inflorescence many-flowered, villous and armed with small recurved prickles; sepals ovate, apiculate, 5 mm. long, tomentose on both sides; petals elliptic, 7–8 mm. long; fruit unknown.

Type collected at Coban, Alta Verapaz, Guatemala, December 1902, *H. von Türckheim 8387* (herb. John Donnell Smith).

63. **Rubus alnifolius** Rydberg, sp. nov.

Stem decumbent or reclining, terete, pilose and villous-tomentose, in age glabrate and almost black, armed with short recurved prickles; leaves 3-foliolate; stipules lance-subulate, 3 mm. long; petioles, petiolules, and midveins pilose and armed with recurved prickles; leaflets oval, coriaceous, 3–5 cm. long, rounded at both ends or obtuse at the apex, finely serrate, with short ovate teeth, glabrous on both sides except on the veins; lateral veins purplish, about 10 on each side, strong on the lower surface; inflorescence racemiform, densely pilose and more or less prickly, 10–12-flowered; sepals ovate, apiculate, 6–7 mm. long, tomentose on both sides; petals unknown; fruit oblong, 1.5–2 cm. long, 1 cm. thick, dark-purple; drupelets numerous; putamen 2.5 mm. long, strongly reticulate.

Type collected at San Miguel, near Jalapa, Vera Cruz, May 17–22, 1899, *Rose & Hough 4295* (U. S. Nat. Herb.).

XIII. **Duri.** Vines, with perennial stems, and coriaceous or subcoriaceous ternate leaves; stipules setaceous; stem and inflorescence prickly, the latter partly axillary and leafless, partly at the end of the branches and then somewhat leafy-bracted; leaflets strongly veined, finely serrate; lateral veins 5–10 on each side.

64. **Rubus durus** C. Wright; Sauv. Anal. Acad. Ci. Habana **5**: 408. 1869.

Rubus ferrugineus cubensis Griseb. Cat. Pl. Cub. 85. 1866.

Stem perennial, subscandent, terete, glabrous, armed with small, sparse, flat, recurved prickles; leaves ternate; stipules linear-lanceolate, deciduous; petioles, petiolules, and midveins with hooked prickles; petioles 3–5 cm. long; leaflets coriaceous, evergreen, mucronate-serrulate, glabrous and shining above, dull, costate-venose, and slightly hairy in the axils of the veins beneath, elliptic or elliptic-lanceolate, acute at both ends, or those of the floral leaves subcordate at the base; panicles in the axils of old leaves, leafless; peduncles with recurved prickles, as well as the pedicels tomentose; bractlets oblong; sepals white-tomentose, ovate-lanceolate, acuminate, reflexed in fruit; petals suborbicular, about equaling the sepals; fruit black; drupelets pubescent, only slightly fleshy.

TYPE LOCALITY: Yunque de Baracoa, Cuba.
DISTRIBUTION: Cuba.

65. **Rubus florulentus** Focke, Abh. Nat. Ver. Bremen **11**: 411. 1890.

Stems perennial, climbing, 4 m. high, angled, somewhat puberulent, sparingly armed with recurved flattened prickles; leaves ternate; stipules linear-lanceolate, small; petioles, petiolules, and midveins prickly, puberulent or glabrate; petioles 4–6 cm. long; leaflets coriaceous, finely serrate with mucronate teeth, glabrous and shining above, dull, glabrate or hirsute at least on the veins beneath; median leaflet broadly oval, short-acuminate or acute at the apex, subcordate at the base, 4–6 cm. long, 3–5 cm. wide; petiolule 1–2.5 cm. long; lateral leaflets similar or somewhat more ovate, their petiolules 3–6 mm. long; panicles ample,

many-flowered; peduncle and its branches tomentose, hirtous, armed with rather stout curved prickles; bracts ovate-lanceolate or lanceolate, tomentose; pedicels often with 2 or 3 bracts; sepals ovate, reflexed, tomentose, mucronate, 7–8 mm. long; petals white, obovate, nearly twice as long as the sepals; drupelets numerous, glabrous.

TYPE LOCALITY: Adjuntas, in the woods of the mountain Cienega, Porto Rico.
DISTRIBUTION: Porto Rico.

66. **Rubus Eggersii** (Focke) Rydberg, sp. nov.

Rubus florulentus Eggersii Focke, Abh. Nat. Ver. Bremen 11: 411. 1890.

Stem perennial, climbing, several meters high, sharply angled, rather densely puberulent, armed with straight or somewhat curved, flattened prickles; leaves ternate; stipules subulate, pubescent; petioles, petiolules, and midveins armed with hooked prickles, densely puberulent; petioles 4–6 cm. long; leaflets coriaceous, glabrous and somewhat shining above, densely velutinous-hirsutulous, strongly veined, and somewhat rugose beneath, finely serrulate with mucronate teeth; terminal leaflet rounded-ovate, subcordate at the base, acute at the apex, 4–10 cm. long with a petiolule 1–2 cm. long, the lateral ones similar, rounded at the base, with much shorter petiolules; peduncles terminal and axillary, mostly leafless, densely velutinous; bracts oblong-ovate, 4–5 mm. long; sepals ovate, mucronate, 6–7 mm. long, tomentose on both sides, soon reflexed; petals white, obovate, 8–9 mm. long; drupelets numerous, nearly glabrous.

TYPE LOCALITY: Mount Barrero, Santo Domingo.
DISTRIBUTION: Santo Domingo.

67. **Rubus domingensis** Focke, Abh. Nat. Ver. Bremen 11: 411. 1890.

Stems perennial, 2–3 m. high, climbing, obtusely angled, appressed-pubescent, armed with spreading, subulate-lanceolate, only slightly compressed prickles; leaves ternate; stipules linear-lanceolate, small; petioles and petiolules tomentulose-puberulent and armed with slightly curved prickles; leaflets coriaceous, evergreen, irregularly coarsely and sharply serrate, glabrous above, grayish or brownish-tomentose below; median leaflet ovate-cordate, short-acuminate, 5–10 cm. long, scarcely larger than the similar lateral leaflets; panicles axillary to old leaves, leafless; peduncle and its branches tomentose-hirtous, armed with straight, spreading, subulate prickles; bracts ovate, tomentose; sepals ovate, tomentose, reflexed or after anthesis spreading; petals white, longer than the sepals; fruit black; drupelets numerous, pubescent.

TYPE LOCALITY: Valle de Constanza, Santiago, Santo Domingo.
DISTRIBUTION: Santo Domingo.

XIV. **Scandentes**. High-climbing vines with perennial stems and coriaceous digitately 3–5-foliolate leaves; stipules subulate; leaflets finely serrate with short teeth; lateral veins about 10 on each side; inflorescence mostly axillary and naked, paniculate; fruit black, of few drupelets, falling off separately.

68. **Rubus scandens** Liebm. Vidensk. Meddel. **1852**: 154. 1853.

Stem perennial, high-climbing, often 6 m. high and 2 cm. thick; main stems unarmed, obtusely 5-angled, the floral branches subterete, densely dark-villous, unarmed; leaves coriaceous, persistent, digitately quinate, rarely ternate, evergreen; stipules setaceous, deciduous; petioles of the main stems 7–8 cm. long, of the branches somewhat shorter, with numerous small prickles, dark-pubescent and with scattered glandular hairs; leaflets long-petioluled, subequal, broadly ovate, short-acuminate, cordate at the base, denticulate with distant sharp teeth, light-green, finely puberulent and at last glabrate above, densely dark-pubescent beneath; petiolule of the middle leaflet on the main stem 6–7 cm. long, those of the lateral leaflets 3–4 cm. long, those on the branches about half as long; panicles terminal and axillary, widely branched, unarmed, densely grayish-tomentose; bracts ovate, grayish-tomentose; sepals ovate, obtuse, at last reflexed; petals white or pinkish, obovate, slightly exceeding the sepals; fruit small, dark-purple; drupelets 6–20, large, ovate, sparingly pubescent, gradually falling apart separately.

TYPE LOCALITY: Oak woods, in the vicinity of Mirador, Vera Cruz.
DISTRIBUTION: Vera Cruz.

69. **Rubus fagifolius** Schlecht. & Cham. Linnaea 5: 571. 1830.

Stems perennial, very long, reaching 5 m., high-climbing, the young shoots 5-angled, sulcate, sparingly puberulent, armed with puberulent, flattened, recurved prickles; leaves coriaceous, persistent, quinate or the upper ternate; stipules small, subulate, pubescent, 2–4 mm. long, mostly deciduous; petioles 5–7 cm. long, puberulent, rarely armed with small prickles; leaflets coriaceous, elliptic, short-acuminate at the apex, obtuse at the base, glabrous and shining above, dull and sparingly puberulent on the veins beneath, sharply serrulate on the margins, with 12–15 lateral veins on each side, impressed above, prominent beneath; terminal leaflet 10–12 cm. long, more than 5 cm. wide, on a petiolule 3–4 cm. long, the others somewhat smaller, the outer ones on petiolules 4–5 mm. long; panicles terminal and axillary, unarmed, puberulent; bracts ovate, white-tomentose, 2 mm. long; sepals ovate, obtuse, soon reflexed; petals white; fruit red, small; drupelets few, 4–6, large, ovate, at first pilose but glabrate, gradually falling apart separately.

TYPE LOCALITY: In thickets of Papantla, Vera Cruz.
DISTRIBUTION: Southern Mexico, in borders of woods.
ILLUSTRATION: Bibl. Bot. 17[72]: *f. 84.*

XV. **Ursini.** Trailing or decumbent subdioecious species; leaves deciduous, ternate or those of the turions and inflorescence unifoliolate and often 3-lobed; leaflets serrate, membranous; stipules subulate; inflorescence corymbose, more or less leafy; the substaminate flowers with larger petals and abortive pistils, the subpistillate ones with smaller petals and small rudimentary stamens; fruit black, of numerous drupelets united with the fleshy receptacle.

70. **Rubus ursinus** Cham. & Schlecht. Linnaea 2: 11. 1827.

Rubus Menziesii Hook. Fl. Bor. Am. 1: 179. 1832.
Parmena Menziesii Greene, Leaflets 1: 244, in part. 1906.

Stems biennial, climbing or trailing, finely and softly villous, sometimes almost tomentose, rarely glabrate the second year, armed with slender straight prickles; leaves of the turions ternate or unifoliolate; stipules subulate, small; petioles, petiolules, and midveins villous-tomentose and armed with slender prickles; petioles 1–5 cm. long; leaflets of the ternate leaves broadly ovate, 3–6 cm. long, acute at the apex, obtuse or rounded at the base, green and short-hirsute above, paler and densely villous, at first almost white-tomentose beneath, coarsely double-serrate, with ovate teeth; blades of the unifoliolate leaves deltoid, 4–10 cm. long, cordate at the base, often 3-lobed, with the middle lobe larger; leaves of the floral branches ternate or the upper unifoliolate, similar to those of the young shoots, but with more rounded leaflets or lobes, often obtusish and broader above the middle, usually smaller; inflorescence corymbose, terminal and in the upper axils, as well as the hypanthium densely and finely villous-tomentose, usually copiously prickly, rarely very glandular; sepals tomentose on both sides, ovate, abruptly caudate-acuminate, 8–12 mm. long; petals of the staminate flowers oval or elliptic, 8–12 cm. long, white, those of the essentially pistillate flowers 6–8 mm. long, oval; fruit slightly elongate, about 10–12 mm. long, 8–10 mm. thick; drupelets numerous, tomentose; putamen faintly reticulate.

TYPE LOCALITY: San Francisco Bay, California.
DISTRIBUTION: California.

Rubus idaeus × ursinus. See under *R. idaeus*.

71. **Rubus vitifolius** Cham. & Schlecht. Linnaea 2: 10. 1827

Rubus ursinus glabratus Presl, Epim. Bot. 197. 1851.

Stems climbing over bushes or trailing, biennial, 1–2 m. long, hirsute and with weak, mostly straight prickles, sometimes glabrate the second year; leaves of the turions 3-foliolate; stipules linear-subulate, about 1 cm. long; petioles, petiolules, and midveins hirsute as well as prickly; petioles 3–4 cm. long; leaflets ovate, acute or short-acuminate at the apex, obtuse or rounded, or rarely subcordate, at the base, sparingly hirsute on both sides, or glabrate in age, sharply double-serrate, green on both sides, 4–8 cm. long; petiolule of the terminal leaflet 1–2 cm. long, those of the lateral ones 1–3 mm. long; leaves of the floral branches ternate or

unifoliolate; leaflets of the ternate leaves similar to those of the turions, but more rhombic-ovate, less acuminate at the apex and often acutish at the base; unifoliolate leaf-blades usually more or less cordate at the base and 3-lobed, with the terminal lobe longer; inflorescence corymbose, terminal, hirsute and weakly prickly; sepals lanceolate, grayish-tomentose on both sides, 8–10 mm. long, caudate-acuminate, rarely with foliaceous tips and then much longer, closing around the fruit; petals of the staminate flowers elliptic, 10–15 mm. long, white, those of the essentially pistillate flowers oval, 5 mm. long; fruit elongate, 8–12 mm. long, 7–8 mm. thick; drupelets numerous, pubescent; putamen slightly reticulate.

TYPE LOCALITY: San Francisco, California.
DISTRIBUTION: Central and southern California, mostly near the coast.

72. **Rubus Helleri** Rydberg, sp. nov.

Stems biennial, decumbent or climbing, usually tinged with red, sparingly pilose, in age glabrous, armed with very small and weak straight prickles; leaves of the floral branches ternate; stipules linear, oblanceolate, pilose; petioles, petiolules, and midveins sparingly and weakly prickly; petioles 4–5 cm. long; leaflets thin, dark-green above, paler beneath, sparingly short-hirsute on both sides, coarsely double-serrate, with broadly ovate, mucronulate teeth, acute at the apex; terminal leaflet broadly ovate or cordate, 4–6 cm. long, its petiolule 1–2 cm. long, the lateral ones ovate, rounded at the base, subsessile; cymes corymbiform, terminal or also from the upper axils, finely pilose, somewhat prickly and rather copiously glandular-hispid; hypanthium and calyx copiously glandular as well as finely pilose; sepals ovate, 6–7 mm. long, abruptly caudate-acuminate; petals white, elliptic to ovate, those of the staminate flowers 10–12 mm. long, those of the pistillate ones 8–10 mm. long; fruit ovoid, black, 8–10 mm. long and nearly as broad; drupelets numerous, finely pilose.

Type collected near Montesano, Chehalis County, Washington, June 30, 1898, *A. A. & E. Gertrude Heller 3990* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: British Columbia to Oregon, west of the Cascades.

73. **Rubus Eastwoodianus** Rydberg, sp. nov.

Stems climbing over bushes, sparingly hirsute, soon glabrous, terete, reddish, sparingly armed with slender, small, straight prickles; leaves of the turions ternate; stipules setaceous, ciliate, about 1 cm. long; petioles, petiolules, and midveins sparingly and weakly prickly; petioles 5–6 cm. long; leaflets thin, green on both sides, sparingly short-hirsute above, almost glabrous beneath, except on the veins, somewhat double-serrate, with broadly ovate, mucronate teeth, acute or acutish at both ends; terminal leaflet rhombic-ovate, 6–10 cm. long, with a petiolule 2–3 cm. long, the lateral ones elliptic-ovate, 5–7 cm. long, with petiolules 2–5 mm. long; leaves of the floral branches similar, or with broader and more rounded leaflets, or unifoliolate, cordate at the base, often more or less deeply 3-lobed; inflorescence corymbose, terminal, villous, prickly and slightly glandular; sepals ovate, 5–6 mm. long, tomentose, mucronate; petals of the pistillate flowers oval, 6–7 mm. long, white; fruit much elongate, often 2 cm. long and 1 cm. thick; drupelets glabrous; putamen rather strongly reticulate.

Type collected on Mt. Tamalpais, California, June 15, 1905, *Rydberg 6238* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: Central California.

74. **Rubus macropetalus** Dougl.; Hook. Fl. Bor. Am. **1**: 178. 1832.

ubus myriacanthus Dougl.; Hook. Fl. Bor. Am. 1: 178, as synonym. 1832.

Stem biennial, terete, often purplish, climbing or decumbent, sparingly hirsute or glabrous the second year, armed with small, slightly retrorse prickles; leaves of the floral branches ternate; stipules linear-subulate, 1–1.5 cm. long, hirsute; petioles, petiolules, and midveins sparingly and weakly prickly; petioles 4–5 cm. long; terminal leaflet broadly ovate or subcordate, often more or less lobed, double-serrate, with ovate or lanceolate-mucronate teeth, acute or acuminate, green and sparingly hirsute on both sides, sometimes glabrate in age, 5–8 cm. long; petiolules 1–2 cm. long; lateral leaflets ovate, subsessile, 3–5 cm. long; inflorescence corymbose, terminal or in the upper axils, hirsute or villous, armed with weak prickles

and slightly glandular; hypanthium and calyx villous-tomentose, usually prickly; sepals lanceolate, with long caudate acuminations; petals of the staminate flowers 12–16 mm. long, elliptic, white; those of the essentially pistillate flowers oval, 7–10 mm. long; fruit hemispheric or slightly elongate, black, sweet, 10–12 mm. long, 8–10 mm. thick; drupelets many, glabrous; putamen strongly reticulate.

TYPE LOCALITY: Banks of rivers and in low woods, in the valley of the Columbia.
DISTRIBUTION: British Columbia to Idaho and northern California.
ILLUSTRATIONS: Hook. Fl. Bor. Am. *pl. 59;* L. H. Bailey, Evol. Nat. Fr. *f. 78;* Card, Bush-Fruits *f. 64* (as *R. vitifolius*).

Rubus macropetalus × viburnifolius. A specimen, apparently a hybrid of *R. macropetalus* and a raspberry, most likely *R. viburnifolius*, has the bristly and glandular stem, pubescent fruit and strongly veined leaflets of the latter species; but both the leaves and the fruits are much larger, the sepals much longer and the terminal leaflet large and cordate; the tomentum on the under surface of the leaves is but slight. Along the snowsheds, Glacier, British Columbia, August 1897, *Mr. & Mrs. C. Van Brunt 121* (herb. N. Y. Bot. Gard.).

XVI. **Laciniati.** Introduced shrubby species; leaves digitately 5-foliolate, with divided, dissected, and incised leaflets, villous or tomentose beneath; stipules setaceous; inflorescence paniculate, leafy; drupelets many, united with the fleshy receptacle.

75. **Rubus laciniatus** Willd. Hort. Berol. *pl. 82.* 1807.

Rubus vulgaris laciniatus Dippel, Handb. Laubh. **3**: 529. 1893.

Stem biennial or perennial, 1–3 m. high, olive-purple, angled, armed with hooked, flat prickles, pilose or hirsute when young, soon glabrate; leaves 5-foliolate, or those of the floral branches sometimes 1–3-foliolate; stipules setaceous; petioles, petiolules, and veins pilose and armed with hooked flat prickles; terminal leaflet cordate in outline, the lateral ones ovate, all variously divided and laciniate, with lanceolate often falcate lobes and teeth strongly veined beneath, green and glabrous above, pilose and somewhat tomentulose beneath; inflorescence paniculate, terminal, often leafy, villous-pilose, strongly prickly; sepals ovate or lanceolate, caudate-acuminate, often lobed, reflexed, densely villous and somewhat prickly without, white-tomentose within; petals white or pinkish, obovate, sometimes lobed, about 1 cm. long; fruit black, globose, 12–15 mm. in diameter.

TYPE LOCALITY: Unknown.
DISTRIBUTION: New York and Pennsylvania; Oregon, Washington, and British Columbia; escaped from cultivation and naturalized.
ILLUSTRATIONS: Willd. Hort. Berol. *pl. 82;* Wats. Dendr. **1**: *f. 69;* Cycl. Am. Hort. *f. 2203;* C. K. Schneid. Handb. Laubh. **1**: *f. 310 c–c²; f. 311 e.*

XVII. **Discolores.** Erect or decumbent shrubs with biennial prickly stems; leaves digitately 3–5-foliolate; leaflets herbaceous but often thick, densely tomentose beneath, coarsely serrate or crenate; lateral veins 5–10; inflorescence racemose or paniculate; drupelets many, united with the fleshy receptacle.

76. **Rubus Linkianus** Seringe, in DC. Prodr. **2**: 560. 1825.

Rubus paniculatus Schlecht.; Link, Enum. **2**: 61. 1822. Not *R. paniculatus* Smith. 1815.

Stem angled, tomentulose, armed with flattened hooked prickles; leaves 3–5-foliolate; stipules subulate; petioles, petiolules, and veins tomentulose and strongly prickly; leaflets elliptic or oval, acute or acuminate, green and glabrous above, white-tomentose beneath, more or less distinctly double-toothed; inflorescence paniculate, tomentose, strongly prickly, often leafy, densely flowered; sepals ovate, short-acuminate, white-tomentose on both sides; petals white, obovate, 7–10 mm. long, usually numerous; fruit black, seldom developed.

TYPE LOCALITY: Described from garden specimens of unknown origin.
DISTRIBUTION: Rarely escaped from cultivation (erroneously known in the trade as *R. fruticosus*), and on ballast.

77. **Rubus cuneifolius** Pursh, Fl. Am. Sept. 347. 1814.

Rubus parvifolius Walt. Fl. Car. 149. 1788. Not *R. parvifolius* L. 1753.

Stems biennial, erect, 0.5–1.5 m. high, more or less tomentose, terete, armed with straight or somewhat recurved prickles; leaves of the turions pedately 3–5-foliolate; stipules setaceous,

adnate below to the petioles; petioles, petiolules, and midveins tomentose and sparingly armed with recurved prickles; leaflets obovate or cuneate-obovate, thick, dark-green and sparingly pilose or glabrate above, white-tomentose beneath, finely serrate except towards the acute or cuneate base, obtuse or rounded at the apex, 3–6 cm. long; petiolule of the median leaflet 1–2.5 cm. long, those of the outermost leaflets 1–2 mm. long; floral branches 1–3 dm. long; leaves 1–3-foliolate; leaflets smaller, 2–4 cm. long, more cuneate or cuneate-oblanceolate; inflorescence corymbiform, 3–7-flowered, more or less foliaceous, tomentose and prickly; sepals white-tomentose on both sides, 4–5 mm. long, ovate, merely mucronate; petals white, obovate to elliptic, 8–12 mm. long; fruit black, rather dry, but fine-flavored, short-oblong, 10–12 mm. long, 8–10 mm. broad; drupelets 30–50; putamen strongly reticulate, fully 2 mm. long.

TYPE LOCALITY: New Jersey.
DISTRIBUTION: Dry fields, from Connecticut and New Jersey to Florida and Louisiana.
ILLUSTRATIONS: Britt. & Brown, Ill. Fl. *f. 1901;* ed. 2. *f. 2296;* L. H. Bailey, Evol. Nat. Fr. *f. 70, 89;* Card, Bush-Fruits *f. 62;* C. K. Schneid. Handb. Laubh. 1: *f. 310 a–a²; f. 311 b.*

Rubus argutus × **cuneifolius** Bicknell. Most resembling *R. cuneifolius*, but the tomentum on the lower surface of the leaves and sepals less dense, gray instead of white, and longer and more villous, the stem strongly angled, and the prickles stouter. Toms River, New Jersey, *Bicknell.*

Rubus cuneifolius × **floridus.** Specimens resembling *R. cuneifolius*, but with thinner leaves, more loosely pubescent above, and less white beneath, with smaller curved prickles, represent apparently a hybrid between *R. cuneifolius* and *R. floridus.* Ocean View, Norfolk, Virginia, 1898, *Kearney 1212.* DISTRIBUTION: Virginia to North Carolina.

Rubus cuneifolius × **lucidus.** Like *R. cuneifolius* in habit, but weaker and with the long, more or less clawed petals of the *R. trivialis* group; leaves thinner, often acute, and with sharper teeth. Florida, *Chapman 2832,* mostly (herb. Mo. Bot. Gard.). DISTRIBUTION: Northern Florida.

Rubus cuneifolius × **trivialis.** With the leaf-form of *R. cuneifolius,* but the leaves less pubescent, only slightly paler beneath, the stem prostrate, and the flowers solitary as in *R. trivialis.* Hartsville, South Carolina, May 24, 1909, *W. C. Coker.*

XVIII. **Arguti.** Erect shrubs with biennial, usually more or less prickly stems (except in *R. canadensis*); leaves digitately 3–5-foliolate; leaflets green on both sides, not coriaceous, soft, usually coarsely serrate; lateral veins 5–12 on each side; stipules setaceous or subulate; inflorescence paniculate or racemose, often leafy-bracted; drupelets usually many, united with the fleshy receptacle. "Blackberries."

78. **Rubus sativus** (L. H. Bailey) Brainerd,

Rhodora **2**: 26. 1900.

Rubus villosus sativus L. H. Bailey, Am. Gard. **11**: 719. 1890.
Rubus nigrobaccus sativus L. H. Bailey, Evol. Nat. Fr. 379. 1898.

Stem biennial, stout, erect, 1–2 m. high, glabrous, or the young parts villous, somewhat angled, armed with rather stout, straight prickles; leaves of the turions pedately 5-foliolate; stipules subulate, 10–15 mm. long; petioles, petiolules, and midveins villous and armed with straight prickles, but only slightly glandular; leaflets broad and rather thin, pilose above, villous beneath, coarsely double-serrate, with triangular or lanceolate teeth, abruptly acuminate at the apex; terminal leaflet broadly cordate, 10–15 cm. long, 8–10 cm. wide, with a deep sinus at the base, its petiolule 3–4 cm. long; lateral leaflets broadly ovate, the lowest 5–8 cm. long, on short petiolules; floral branches 8–15 cm. long, their leaves 1–3-foliolate, the leaflets coarsely toothed, broadly ovate, 4–8 cm. long; inflorescence short, corymbiform, few-flowered, densely villous and glandular; bracts often lobed or toothed; sepals ovate, 7–8 mm. long, short-acuminate, villous without, tomentose within; petals white, broadly obovate or suborbicular, 12–15 mm. long; fruit usually globose, 15 mm. broad, black and juicy; putamen strongly reticulate, keeled, 2.5 mm. long.

TYPE LOCALITY: No locality given; described from cultivated specimens.
DISTRIBUTION: Open fields, from Quebec and Ontario to Connecticut and Pennsylvania.
ILLUSTRATIONS: L. H. Bailey, Evol. Nat. Fr. *f. 61, 62, 63;* Cycl. Am. Hort. *f. 2207;* Card, Bush-Fruits *f. 61.*

Rubus canadensis × **sativus.** Most resembling *R. sativus* in leaf-form, but less villous and less glandular, the leaves thinner, and the prickles fewer and more slender; stem suggesting *R. canadensis.* Windham, Vermont, June 6, 1903, *Blanchard 265.*

Rubus nigricans × **sativus.** *Rubus frondisentis* Blanchard, Torreya **6**: 119, in part. 1906. With the habit, copious glands, and broad leaflets of *R. sativus,* but the stem densely armed with weak prickles all over and the leaves less pubescent. Athens, Windham County, Vermont, August 29, *W. H. Blanchard 54, set 2.*

79. **Rubus nigrobaccus** L. H. Bailey, Evol. Nat. Fr. 379. 1898.

Rubus villosus Bigel. Fl. Bost. 122. 1814. Not *R. villosus* Thunb. 1784.
Rubus americanus "Hort.;" Bab. Gard. Chron. III. **2**: 99, in part. 1887.
Rubus nigrobaccus albidus L. H. Bailey, Evol. Nat. Fr. 379. 1898.
Rubus nigrobaccus Gravesii Fernald, Rhodora **3**: 295. 1901.

Stem biennial, glabrous, furrowed and obtusely angled, 0.5–3 m. high, erect at the base, usually recurving, often branching the first year, stout, glabrous or somewhat glandular below, villous on the young part, armed with stout, usually somewhat curved, flat prickles; leaves of the turions pedately 5-foliolate; stipules subulate, about 1 cm. long; petioles, petiolules, and midveins more or less villous, glandular-hispid, and armed with recurved prickles; petioles 5–12 cm. long; leaflets all petioluled, ovate, doubly serrate, with lanceolate teeth, abruptly acuminate at the apex, subcordate or rounded at the base, 4–20 cm. long, dark-green and more or less pilose above, somewhat paler and densely and softly pubescent beneath; lateral veins 10–14 on each side; petiolule of the median leaflet 3–10 cm. long, those of the outermost leaflets 1 cm. long or less; floral branches 1–3 dm. long, villous and rather copiously glandular-hispid; leaves 3-foliolate; leaflets 2–10 cm. long, less acuminate, usually acute, the median one with a petiolule 1–2 cm. long, the lateral ones short-petioled or subsessile; inflorescence racemiform, 1–2 dm. long, often somewhat leafy-bracted below, in the North sometimes decidedly so, villous and glandular-hispid; bracts lanceolate; pedicels often spreading; sepals ovate, abruptly cuspidate-acuminate, 6–7 mm. long, villous without, tomentose within; petals white, oval or elliptic, 10–15 mm. long; fruit from hemispheric to elongate, thimble-shaped, black, sweet, 1–1.5 cm. long; drupelets numerous, small, glabrous.

TYPE LOCALITY: Not given.

DISTRIBUTION: Open woods, from Nova Scotia to North Carolina, Arkansas, and Illinois.

ILLUSTRATIONS: Bigel. Am. Med. Bot. *pl. 38;* W. Barton, Veg. Mat. Med. *pl. 39;* Britt. & Brown, Ill. Fl. *f. 1898;* ed. 2. *f. 2301* (as *R. argutus*); ed. 2. *f. 2300* (as *R. allegheniensis*); L. H. Bailey, Evol. Nat. Fr. *f. 59, 60;* Cycl. Am. Hort. *f. 2204–2206;* C. K. Schneid. Handb. Laubh. **1**: *f. 311 h, i.*

Rubus argutus × nigrobaccus. *Rubus allegheniensis × argutus* Bickn. Bull. Torrey Club **38**: 111. 1911. Very variable, usually differing from *R. nigrobaccus* in the more angled stem, with stronger spines and often roughened by sessile glands, smaller and thicker leaves, and less copious and sessile or short-stipitate glands; from *R. argutus* mainly in the presence of more or less stalked glands on the petioles and young branches. Massachusetts and Connecticut to Pennsylvania.

Rubus frondosus × nigrobaccus. *Rubus allegheniensis × frondosus* Bickn. Bull. Torrey Club **38**: 112, in part. 1911. Differing from *R. nigrobaccus* in the short corymbiform leafy-bracted inflorescence, the broader and less acuminate leaflets, the subsessile or short-petioluled lateral leaflets and the rarer stipitate glands on the petioles and petiolules; from *R. frondosus* in the presence of stipitate glands, especially in the inflorescence, and in the less cordate terminal leaflets of the turions. Nantucket Island, Massachusetts, and Long Island, New York.

Rubus nigrobaccus × pergratus. Resembling *R. pergratus* most in habit, but the inflorescence, petioles, etc., more villous-pubescent than in that species and more or less glandular-hispid; leaves narrower and thinner than in *R. nigrobaccus* and much more hairy than in *R. pergratus.* Isle au Haut, Maine, September 30, 1903, *J. C. Arthur 55* and *56.*

Rubus amicalis × nigrobaccus. Resembling *R. amicalis*, but more or less glandular, especially in the inflorescence. From the following hybrid, it differs in the firmer leaflets, dark-green above, paler beneath. Isle au Haut, Maine, September 29, 1903, *J. C. Arthur.*

Rubus canadensis × nigrobaccus. Intermediate between the two parents, being somewhat pubescent and slightly glandular, otherwise perhaps in habit more like *R. canadensis,* with rather thin leaves and few prickles; much resembling *R. pergratus* but differing in the shape of the thinner leaflets, and in being usually more glandular. Tannersville, New York, July 31, 1906, *Rydberg 7974.* DISTRIBUTION: Vermont and New York to North Carolina.

Rubus elegantulus × nigrobaccus. See under *R. elegantulus.*

Rubus nigrobaccus × Randii. Resembling *R. Randii* in habit, but the stem glandular-hispid as well as armed with weak prickles and the leaves sparingly soft-pubescent. Little Moose Mountain, near Little Moose Lake, Adirondacks, New York, July 3, 1906, *P. A. Rydberg 7821.*

Rubus Baileyanus × nigrobaccus. See under *R. Baileyanus.*

Rubus nigrobaccus × plicatifolius. See under *R. plicatifolius.*

Rubus heterophyllus × nigrobaccus. Resembling *R. nigrobaccus* most in habit, having erect and arching stems, but the plant only slightly glandular, the leaflets nearly glabrous and distinctly incised, and the inflorescence but few-flowered. Manitou, Putnam County, New York, *Norman Taylor 429.*

Rubus nigrobaccus × procumbens. See under *R. procumbens.*

Rubus nigricans × nigrobaccus. *Rubus glandicaulis* Blanchard, Rhodora **8**: 172. 1906. *Rubus biformispinus* Blanchard, Rhodora **8**: 178. 1906. Both of these seem to be hybrids of *R. nigricans* and *R. nigrobaccus.* They have the leaf-form and glands of *R. nigrobaccus,* but the stem is armed with numerous slender and stout prickles, by no means confined to the angles, as well as densely glandular-hispid, the leaflets are glabrate and shining above and more sparingly pubescent beneath; in *R. glandicaulis* the stem is erect as in *R. nigrobaccus,* but the inflorescence is that of *R. nigricans,* in *R. biformispinus* the reverse is true. Nova Scotia, Maine and Ontario.

Rubus nigrobaccus × vermontanus. *Rubus frondisentis* Blanchard, Torreya **6**: 119. 1906. Evi-

dently a hybrid between *R. nigrobaccus* and *R. vermontanus;* with the habit of the former, but the stem covered all over with moderately strong and weak prickles, as well as bristles and stalked glands, the leaves less pubescent beneath, practically glabrous and shining above, the flowers smaller and drupelets fewer; much resembling *R. glandicaulis* (see *R. nigricans* × *nigrobaccus*), but not so stout, and the prickles weaker, the flowers smaller, and the drupelets fewer and larger. Vermont.

Rubus hispidus × nigrobaccus. *Rubus permixtus* Blanchard, Torreya **6**: 117. 1906. Apparently a hybrid between *R. hispidus* and *R. nigrobaccus;* habit most like the former, but stems erect at first although soon decumbent, densely bristly and glandular as well as armed with weak prickles; leaflets more or less the shape of those of the latter, but much smaller, less pubescent beneath, only slightly hairy and shining above, and less acuminate; inflorescence and size of the flowers and fruit like those of *R. hispidus,* but the inflorescence much more glandular with very small glands. New Hampshire and Vermont.

80. **Rubus allegheniensis** Porter, Bull. Torrey Club **23**: 153. 1896.

Rubus villosus montanus Porter, Bull. Torrey Club **17**: 15. 1890.
Rubus montanus Porter, Bull. Torrey Club 21: 120. 1894. Not *R. montanus* Ortm. 1852.

Stem biennial, glabrous in age, villous and glandular at first, terete, usually red, 1–2 m. high, slender, erect, usually simple, sparingly armed with short, weak, straight prickles; leaves of the turions pedately 5-foliolate; stipules subulate, 3–7 mm. long; petioles, petiolules, and midveins villous, beset with red glands and occasional prickles; petioles 5–12 cm. long; leaflets petioluled, thin, coarsely serrate, with triangular mucronate teeth, acute or obtuse at the base, pilose above, villous beneath, acuminate at the apex; terminal leaflet ovate or elliptic, 8–12 cm. long, its petiolule 3–4 cm. long; outer leaflets more lanceolate, the petiolules of the lowest pair 2–4 mm. long; flowering stems 1–2 dm. long, villous and with stalked red glands; leaves ternate; leaflets 4–6 cm. long, elliptic, the lateral almost sessile, the terminal with a petiolule about 1 cm. long; inflorescence racemose, villous and somewhat glandular; pedicels usually ascending, 1–2 cm. long; bracts lanceolate; sepals lanceolate, acuminate, 7–8 mm. long, villous; petals white, obovate, 8 mm. long, spreading; fruit black, 10–12 mm. long, only 7–8 mm. thick, spicy, and rather dry, often tapering; drupelets numerous; putamen deeply rugose, 2 mm. long.

TYPE LOCALITY: Given as "the higher mountains of New York, New Jersey and Pennsylvania," but the type specimens were collected at Pocono Summit, Pennsylvania.
DISTRIBUTION: Eastern Pennsylvania and New Jersey.
ILLUSTRATIONS: Britt. & Brown, Ill. Fl. *f. 1899.*

81. **Rubus argutus** Link, Enum. **2**: 60. 1822.

Rubus fruticosus Marsh. Arbust. 137. 1785. Not *R. fruticosus* L. 1753.
Rubus floricomus Blanchard, Am. Bot. **9**: 106. 1905.
Rubus Andrewsianus Blanchard, Rhodora **8**: 17. 1906.
Rubus amnicola Blanchard, Rhodora **8**: 170. 1906.

Stems biennial, 1–2 m. high, erect or recurving, sometimes branching the first year, glabrous, often reddish on the upper side, strongly angled and furrowed, copiously armed with stout, mostly straight, spreading, flattened prickles often 6–8 mm. long; leaves of the turions pedately 5-foliolate; stipules subulate, 10–15 mm. long; petioles, petiolules, and midveins somewhat pubescent and armed with rather stout usually more or less curved prickles, sometimes with scattered subsessile glands; petioles 3–7 cm. long; leaflets ovate, sharply double-serrate, short-acuminate at the apex, rounded or the terminal one subcordate at the base, or rarely acute at the base (*R. floricomus*), rather firm, dark-green and sparingly appressed-hairy or glabrate above, softly and more densely pubescent, sometimes subvelutinous beneath; median leaflet 6–10 cm. long, its petiolule 1–3 cm. long, the lateral ones somewhat smaller, short-petioluled, the outermost subsessile, 3–6 cm. long and more acute at the base; floral branches 1–2 dm. long, rather densely villous, rarely slightly glandular; leaves 3-foliolate or some of the inflorescence 1-foliolate; petioles 1–3 cm. long; leaflets 3–6 cm. long, ovate or oval, rounded or acute at the base, acute at the apex, the median one with a petiolule 1–2 cm. long, the lateral ones subsessile; inflorescence a short raceme, 8–12-flowered, occasionally with solitary flowers in the upper leaf-axils; bracts lanceolate; sepals ovate, abruptly acuminate, 6–7 mm. long, villous without, tomentose within; petals white, orbicular or round-oval, about 1 cm. long; fruit thimble-shaped, 10–12 mm. long and nearly as broad, black; drupelets about 30, glabrous.

TYPE LOCALITY: North America.
DISTRIBUTION: Nova Scotia to the mountains of North Carolina, Kansas, and Iowa.
ILLUSTRATIONS: L. H. Bailey, Evol. Nat. Fr. *f. 64;* Cycl. Am. Hort. *f. 2208.*

Rubus argutus × cuneifolius. See under *R. cuneifolius*.

Rubus argutus × nigrobaccus. See under *R. nigrobaccus*.

Rubus argutus × frondosus Bickn. Bull. Torrey Club **38**: 114. 1911. Combining characters of the two parents, having the short leafy inflorescence of *R. frondosus* and the strongly angled stem and the stout prickles of *R. argutus*. Connecticut; Long Island, New York.

Rubus argutus × recurvans. *Rubus argutus × frondosus* Bickn. Bull. Torrey Club **38**: 114, in part. 1911. Also combining characters of the two parents in the same way as the preceding hybrid, but the leaflets more incised, the stems more arching and more prickly. Quaise, Nantucket Island, Massachusetts, June 9, 1909, *E. P. Bicknell 34*. DISTRIBUTION: Nantucket Island, Massachusetts; Long Island, New York.

Rubus argutus × canadensis. See under *R. canadensis*.

Rubus argutus × Baileyanus Bickn. Bull. Torrey Club **38**: 116. 1911. With the habit of *R. argutus*, but rather more prickly, in age becoming reclined; leaflets thin and broad as in *R. Baileyanus;* inflorescence shorter than in *R. argutus*, rather few-flowered and more or less leafy-bracted. Nantucket Island, Massachusetts; Long Island, New York.

Rubus argutus × flagellaris. See under *R. flagellaris*.

Rubus argutus × procumbens. See under *R. procumbens*.

Rubus argutus × Enslenii Bicknell. *Rubus ostryifolius* Rydb. in Britton, Man. 497. 1901. Resembling *R. argutus* more in habit and pubescence, but varying from erect to decumbent, the stem weaker, more or less angled, with rather numerous but weaker prickles, the leaves thinner, and the flowers fewer. Long Island, New York; Highlands of New Jersey.

Rubus argutus × nigricans. See under *R. nigricans*.

Rubus argutus × hispidus. See under *R. hispidus*.

Rubus argutus × carpinifolius. *Rubus trivialis × argutus* L. H. Bailey, in herb., in part. *Rubus trivialis × villosus* Engelm. in herb. Resembling *R. argutus* most in habit, but *R. carpinifolius* in leaf-form and inflorescence; differing from the former in the thinner less pubescent leaflets with sharper and more double serration, and in the short leafy-bracted inflorescence, the broader petals, and tomentose rather t an villous calyx; differing from *R. carpinifolius* in the thick, strongly angled, suberect stem with reclining branches, stout straight prickles and pubescent leaves. It differs from the similar *R. carpinifolius × floridus* mainly in the angled stem. Margins of woods, opposite St. Louis, Missouri, May 16, 1863, *Engelmann* (herb. Mo. Bot. Gard.).

82. **Rubus floridus** Tratt. Ros. Monog. **3**: 73. 1823.

Rubus argutus floridus L. H. Bailey, Evol. Nat. Fr. 385. 1898.

Stems biennial, erect, 2–5 m. high, or the branches decumbent, more or less angled, somewhat pilose when young, glabrate in age, armed with stout, flat, strongly curved prickles; leaves of the turions 3–5-foliolate; stipules subulate, almost setaceous, 10–12 mm. long, and with few minute scattered mostly sessile glands; petioles and petiolules pilose and sparingly prickly; leaflets oblong-lanceolate or ovate-lanceolate, acute or acuminate at the apex, acute or rounded at the base, 5–10 cm. long, sparingly pubescent above, pale and more densely puberulent beneath, but in age nearly glabrous except the veins, sharply double-serrate, with lanceolate teeth; lateral veins 6–8 on each side; terminal leaflet with a petiolule about 2 cm. long, the lateral ones subsessile; floral branches short; leaves 3-foliolate or the upper unifoliolate; leaflets smaller, more glabrate, 2–5 cm. long, elliptic to rhombic-oval, with shorter more rounded teeth, acute or obtuse; lateral veins 4–7 on each side; flowers in rather few-flowered, more or less leafy corymbs; peduncles and pedicels densely pubescent, sometimes with few scattered glands, but not armed; sepals ovate, 5–6 mm. long, mucronate or short-acuminate, silky-tomentose on both sides; petals white, elliptic-obovate, 12–15 mm. long; fruit thimble-shaped, black, about 1 cm. long; drupelets small, numerous.

TYPE LOCALITY: North America.

DISTRIBUTION: Southeastern Virginia to Missouri, Texas, and Florida.

ILLUSTRATIONS: L. H. Bailey, Evol. Nat. Fr. *f. 90, 91;* C. K. Schneid. Hand. Laubh. **1**: *f. 310 g, g'*.

Rubus cuneifolius × floridus. See under *R. cuneifolius*.

Rubus floridus × frondosus. With the leaf-form, pubescence, short foliaceous inflorescence, and fruit of *R. frondosus*, but the flattened hooked prickles of *R. floridus*. Bluff Lake [Missouri], *Eggert*.

Rubus floridus × lucidus. *Rubus persistens* Rydb.; Small, Fl. SE. U. S. 519 (as to type). 1903. Like *R. floridus*, but the leaves dark-green and shining above, persistent; differing from *R. lucidus* (*R. persistens* mostly, as to description) in being more erect, leaves somewhat pubescent beneath, and calyx villous, rather than tomentulose without. Mississippi.

Rubus carpinifolius × floridus. *Rubus trivialis erectus* Engelm. in herb. *Rubus trivialis × argutus* L. H. Bailey, Evol. Nat. Fr. 377. 1898. Differing from *R. floridus* in the lighter-colored, thinner leaflets with sharper teeth and more rhombic in outline, less dense pubescence, corymbiform more leafy-bracted inflorescence, and more numerous and weaker prickles; from *R. carpinifolius* in the erect stem, the more regularly toothed leaflets, the more triangular teeth and the more or less pubescent stem and leaves. It resembles *R. argutus × carpinifolius* closely, but has weaker and terete stems. Houston, Texas, April, 1842, *Lindheimer* (herb. Mo. Bot. Gard.). DISTRIBUTION: Texas.

83. **Rubus betulifolius** Small, Fl. SE. U. S.518. 1903.

Stems biennial, glabrous, angled, armed with recurved and strongly flattened prickles, erect or recurved-spreading; leaves of the turions 5-foliolate; stipules setaceous, about 1 cm. long; leaflets oblong-lanceolate, 5–10 cm. long, acute or short-acuminate at the apex, acute to rounded at the base, rather evenly serrate, with triangular teeth, thin, glabrous on both sides or slightly pubescent on the veins beneath; petiolule of the median leaflet 2–3 cm. long, those of the outermost ones 1–3 mm. long; petioles, petiolules, and midveins with very flat recurved prickles, glabrous or nearly so; petioles 5–6 cm. long, terete; floral branches 1–2 dm. long, slightly strigillose when young, armed with recurved prickles; leaves 3-foliolate; petioles 3–5 cm. long, glabrous, armed with short, very flat and strongly recurved prickles; leaflets oval or elliptic, thin, glabrous, except the veins beneath, almost evenly serrate, with broad triangular teeth, acute at both ends or rounded at the base; terminal leaflet 4–10 cm. long, shining above, its petiolule 1–2 cm. long, the lateral ones smaller and with short petiolules or subsessile; inflorescence corymbose, somewhat leafy-bracted below, sparingly pubescent and armed with recurved prickles; sepals elliptic-ovate, 5–6 mm. long, mucronate, puberulent without, tomentose within; petals white or pale-rose, elliptic, obovate, 12–15 mm. long; fruit rounded or slightly elongate, 10–15 mm. long, black; drupelets large, glabrous.

TYPE LOCALITY: Not given; but the type was collected at Auburn, Alabama.
DISTRIBUTION: Florida, Alabama, and up the Mississippi valley to southern Illinois.

84. **Rubus frondosus** Bigel. Fl. Bost. ed. 2. 199. 1824.

Rubus villosus frondosus Torr.; L. H. Bailey, Am. Gard. **11**: 719. 1890.
Rubus philadelphicus Blanchard, Torreya **7**: 56. 1907.

Stems biennial, erect or recurved, terete, 1–2 m. high, glabrous, armed with rather stout, straight or slightly recurved prickles, which are somewhat flattened below; leaves of the turions pedately 5-foliolate; stipules about 1 cm. long; petioles, petiolules, and midveins more or less pilose and sparingly prickly; leaflets rather thick, sparingly hairy or glabrate in age above, softly pubescent beneath, sharply double-serrate, abruptly acuminate at the apex; median leaflet rounded-cordate, 8–14 cm. long, 6–10 cm. wide, with a petiolule 3–5 cm. long; lateral leaflets broadly oval, rounded or acutish at the base, petioluled or subsessile, the petiolules 1 cm. long or less; outermost leaflets 4–8 cm. long, similar, sessile; floral branches densely villous, 1–3 cm. long; leaves 3-foliolate, or the upper unifoliolate; stipules lance-linear; petioles 1–3 cm. long, villous, usually with a few scattered prickles; leaflets 3–7 cm. long, obovate or oval, mostly acute at both ends, coarsely toothed, with broad ovate teeth; unifoliolate leaves broadly ovate, rounded or cordate at the base, often 3-lobed; inflorescence a short more or less leafy corymbiform cyme, with a few solitary pedicels in the upper axils; peduncles densely villous, not glandular; sepals broadly ovate, short-acuminate, 5–6 mm. long, villous without, tomentose within; petals broadly oval or suborbicular, about 1 cm. long; fruit black, slightly elongate, about 15 mm. long; drupelets large, glabrous.

TYPE LOCALITY: Roxbury, Massachusetts.
DISTRIBUTION: Ontario to Rhode Island, Virginia, Kansas, and Iowa.
ILLUSTRATIONS: L. H. Bailey, Evol. Nat. Fr. *f. 65;* Britt. & Brown, Ill. Fl. ed. 2. *f. 2299.*

Rubus frondosus × nigrobaccus. See under *R. nigrobaccus.*
Rubus argutus × frondosus. See under *R. argutus.*
Rubus floridus × frondosus. See under *R. floridus.*
Rubus Baileyanus × frondosus. See under *R. Baileyanus.*
Rubus flagellaris × frondosus. See under *R. flagellaris.*
Rubus frondosus × procumbens. *Rubus Rossbergianus* Blanchard, Rhodora **9**: 7. 1907. Like *R. frondosus* but with coarser and more prickly stem, more inclined to tip; leaves more doubly serrate with more prominent veins, approaching those of *R. procumbens.* It is apparently a hybrid or else a form of *R. frondosus.* Southington, Connecticut.
Rubus Enslenii × frondosus Bickn. Bull. Torrey Club **38**: 123. 1911. Differing from *R. frondosus* in the weaker stem, with often more numerous weak prickles, often reclining, smaller and thinner leaves, less foliaceous inflorescence, and small seedy fruit; from *R. Enslenii* in the more erect stem, and in the broader, more hairy and darker leaflets. Nantucket Island, Massachusetts; Long Island, New York.
Rubus frondosus × nigricans. See under *R. nigricans.*
Rubus frondosus × hispidus Bickn. Bull. Torrey Club **38**: 120. 1911. Variable, sometimes erect, sometimes trailing; the leaves with the pubescence of *R. frondosus,* but in less degree, nearly glabrous and more or less shining above, not so broad, and on the floral branches usually

rounded at the apex; the inflorescence, small flowers and few drupelets like those of *R. hispidus*, but the inflorescence more pubescent; stem stouter than in that species and densely covered all over with stronger and weaker prickles as well as bristles, but scarcely at all glandular. Nantucket Island, Massachusetts.

85. **Rubus recurvans** Blanchard, Rhodora 6: 224. 1904.

Rubus arundelanus Blanchard, Rhodora 8: 176. 1906.
Rubus Jeckylanus Blanchard, Rhodora 8: 177. 1906.

Stem biennial, terete, glabrous, armed with rather weak, straight, terete, slightly retrorse prickles, 1–2.5 m. long, at first often erect, later recurving and often rooting at the tips; leaves of the turions 5-foliolate; stipules subulate, 1–1.5 cm. long; petioles, petiolules, and midveins rather sparingly pubescent and armed with retrorse flattened prickles; leaflets glabrate or with scattered hairs above, densely and softly pilose beneath, yellowish-green, coarsely and doubly serrate, with lanceolate teeth, usually rather thin, abruptly long-acuminate; median leaflet broadly ovate, 7–12 cm. long, rounded or subcordate at the base, its petiolule 1–3 cm. long; lateral leaflets ovate, oval, or lanceolate, usually subsessile; floral branches 1–3 dm. long, villous, and somewhat prickly, not glandular; leaves 3-foliolate or the upper unifoliolate; leaflets rhombic, obovate, or oblanceolate, short-acuminate at the apex, usually cuneate at the base, 4–7 cm. long, incisedly double-serrate, with lanceolate teeth; inflorescence a few-flowered corymb, leafy-bracted below; peduncles and pedicels villous; sepals ovate, 7–8 mm. long, abruptly acuminate, villous without, tomentose within; petals white, 12–15 mm. long, elliptic; fruit elongate, 1–1.5 cm. long, sweet; drupelets large, glabrous.

TYPE LOCALITY: Southern Vermont.
DISTRIBUTION: Maine to Connecticut and northern New York.

Rubus argutus × recurvans. See under *R. argutus*.

Rubus canadensis × recurvans. *Rubus recurvans subrecurvans* Blanchard, Rhodora 8: 152. 1906. This, originally described as a variety of *R. recurvans*, is probably a hybrid with *R. canadensis;* the sparingly and weakly prickled stem, and the thin leaves, which on the floral branches are sharply serrate or subincised, suggest strongly that species. Kennebunkport, Maine.

Rubus heterophyllus × recurvans. See under *R. heterophyllus*.

Rubus procumbens × recurvans. See under *R. procumbens*.

Rubus nigricans × recurvans. See under *R. nigricans*.

86. **Rubus Brainerdi** Rydberg, sp. nov.

Rubus sativus Brainerd, Rhodora 2: 26, in part. 1900. Not *R. nigrobaccus sativus* L. H. Bailey. 1898.

Stem biennial, erect, 3–5 dm. high, subterete, glabrous, sparingly armed with minute prickles; leaves of the turions usually quinate; stipules subulate, about 1 cm. long; petioles, petiolules, and veins slightly pubescent, unarmed or with a few short bristle-like prickles; leaflets rather thin, sparingly pilose or glabrate above, softly villous-pubescent beneath, finely dentate, short-acuminate; terminal leaflet orbicular-cordate to broadly ovate, usually somewhat cordate at the base, 6–10 cm. long, its petiolule 2–3 cm. long; lateral leaflets ovate, the outermost 3–6 cm. long, sessile, acute at the base; leaves of the floral branches 1–3-foliolate; leaflets broadly ovate, the terminal one short-petioluled, the lateral ones sessile; inflorescence short, 1–5-flowered, corymbose, villous; sepals ovate, mucronate, about 6 mm. long, villous without, tomentose within; fruit globose, black; drupelets large and few; putamen reticulate, nearly 3 mm. long.

Type collected on dry bank of Otter Creek, Weybridge, Vermont, June 16 and August 12, 1896, *Ezra Brainerd*.

DISTRIBUTION: Western Vermont to New Hampshire.

Rubus Brainerdi × vermontanus. Resembling *R. Brainerdi* in habit, but nearly glabrous, more bristly, and with more elongate inflorescence. Thicket along Otter Creek, Weybridge, Vermont, *Ezra Brainerd*.

87. **Rubus pergratus** Blanchard, Rhodora 8: 96. 1906.

Rubus orarius Blanchard, Rhodora 8: 169. 1906.

Stems biennial, 1–2 m. high, strong, red, glabrous, or the young parts villous, furrowed and angled, armed with few, short, strong, straight prickles; leaves of the turions 5-foliolate; stipules subulate, about 1 cm. long; petioles, petiolules, and midveins sparingly villous, with a few recurved prickles, not glandular; petioles 5–8 cm. long; leaflets oval or ovate, abruptly

long-acuminate, sharply serrate, nearly glabrous above, finely and more or less densely pubescent beneath; terminal leaflet 8–12 cm. long, often subcordate at the base, the petiolule 2–4 cm. long; lateral ones similar but narrower and with shorter petiolules, the outermost often acute at the base and subsessile; leaves of the floral branches ternate or unifoliolate, the leaflets 4–6 cm. long, less acuminate; inflorescence racemose, but short, usually densely villous, rarely with stalked glands; bracts lanceolate; sepals ovate, short-caudate, 7–8 mm. long, villous without, tomentose within; petals white, obovate, 10–12 mm. long; fruit black, 10–12 mm. long, short-oblong; drupelets large and pulpy, 40–60; putamen strongly reticulate, about 2 mm. long.

TYPE LOCALITY: Alsted, New Hampshire, one mile east of Signal Hill.
DISTRIBUTION: Mountains and hills, from Maine and Ontario to the Catskills of New York, and Iowa.

Rubus nigrobaccus × pergratus. See under *R. nigrobaccus*.
Rubus amicalis × pergratus. See under *R. amicalis*.
Rubus canadensis × pergratus. See under *R. canadensis*.
Rubus pergratus × procumbens. See under *R. procumbens*.
Rubus nigricans × pergratus. See under *R. nigricans*.

88. **Rubus amicalis** Blanchard, Rhodora **13**: 56. 1911.

Rubus amabilis Blanchard, Rhodora **8**: 173. 1906. Not *R. amabilis* Focke. 1905.

Stem erect, 1–2 m. high, glabrous, glandless, 5-angled and furrowed, almost unarmed; prickles small, straight, slender; leaves of the turions 5-foliolate; leaflets rather thick, dark-green, shining, when young sparingly appressed-hairy above, lighter-green and glabrous beneath, oblanceolate or lanceolate, long-acuminate, finely doubly serrate, acute or obtuse at the base; middle leaflet 7–13 cm. long, its petiolule 2–3 cm. long; outermost leaflets 5–10 cm. long, subsessile; stipules subulate, about 1 cm. long; petioles 5–8 cm. long, glabrous, glandless, unarmed or armed with minute recurved prickles; leaves of the floral branches much smaller, ternate; leaflets less acuminate; inflorescence racemose, 7–10 cm. long, sparingly villous but glandless; bracts broadly lanceolate; sepals ovate, acuminate, 5 mm. long, glabrous without, tomentose within; petals white, 12–18 mm. long, oval; fruit black, oblong, 12–18 mm. long, 9–12 mm. thick; drupelets 15–40, coherent, pulpy; putamen strongly reticulate, keeled, 2.5 mm. long.

TYPE LOCALITY: Grove Depot, Kennebunk, Maine.
DISTRIBUTION: Maine to Nova Scotia.

Rubus amicalis × nigrobaccus. See under *R. nigrobaccus*.
Rubus amicalis × pergratus. Resembling *R. amicalis* in leaf-form and habit, but somewhat more spiny, and with leaves more pubescent beneath. Isle au Haut, Maine, September 25, 1909, *J. C. Arthur 53*.
Rubus amicalis × nigricans. See under *R. nigricans*.

89. **Rubus canadensis** L. Sp. Pl. 494. 1753.

Rubus Millspaughi Britton, Bull. Torrey Club **18**: 366. 1891.

Stem biennial, 1–4 m. high, more or less grooved and round-angled, reddish-brown or purplish, glabrous, unarmed or with few weak straight prickles; leaves of the turions pedately 5-foliolate; stipules linear-subulate, 1–2 cm. long; petioles 5–10 cm. long, glabrous, usually unarmed; leaflets thin, dark-green, glabrous or with few scattered hairs above, glabrous or pubescent along the veins beneath, sharply serrate, ovate or obovate, rounded or subcordate at the base, abruptly long-acuminate at the apex; median leaflet 7–15 cm. long, on a petiolule 2–8 cm. long, the lateral ones slightly smaller, with petiolules 1–1.5 cm. long, the outermost about half as long as the median one, their petiolules 1–4 mm. long; leaves of the floral branches usually 3-foliolate; leaflets more oval, less acuminate, 5–10 cm. long, the median one with a petiolule 5–20 mm. long, the lateral ones subsessile; inflorescence terminal, racemose, often leafy below, more or less pilose or villous, 8–15 cm. long; bracts lanceolate, 1–1.5 cm. long; pedicels 2–4 cm. long, more or less spreading; sepals ovate, short-acuminate, white-tomentose within and on the margins; petals white, oval, 10–15 mm. long; fruit roundish, 1–1.5 cm. long, black, sour; drupelets rather numerous, glabrous.

TYPE LOCALITY: Canada.
DISTRIBUTION: Woods, from Newfoundland to North Carolina and Michigan.
ILLUSTRATIONS: Britt. & Brown, Ill. Fl. *f. 1900;* ed. 2. *f. 2297;* L. H. Bailey, Evol. Nat. Fr. *f. 92, 93.*

Rubus canadensis × sativus. See under *R. sativus*.
Rubus canadensis × nigrobaccus. See under *R. nigrobaccus*.
Rubus argutus × canadensis. Differing from *R. canadensis* in the more pubescent leaves and the more spiny stem and petioles and from *R. argutus* in the less angled stem with weaker prickles, thinner, more incised and narrower leaflets. Road between Marion and White Top Mountain, Virginia, August 22, 1908, *P. A. Rydberg 8099*. DISTRIBUTION: New Jersey to North Carolina.
Rubus canadensis × recurvans. See under *R. recurvans*.
Rubus canadensis × pergratus. Intermediate between the two parents, having the narrow leaves and general habit of *R. canadensis*, but the pubescence and spines of *R. pergratus*. Tannersville, New York, July 31, 1906, *P. A. Rydberg 7961*.
Rubus canadensis × Randii. Resembling *R. canadensis*, but lower, more slender, with few setaceous prickles, shorter inflorescence, smaller flowers, and poor fruit. West shore of Little Moose Lake, Adirondacks, New York, July 3, 1906, *P. A. Rydberg 7818*. DISTRIBUTION: Nova Scotia to northern New York.
Rubus Baileyanus × canadensis. Stem slender, at first erect, then recurved and tipping, sparingly and weakly armed; differing from *R. canadensis* in the weak terete stem, shorter inflorescence and broader leaflets; from *R. Baileyanus* in the less pubescent or in age glabrate leaves, less decumbent stem, and less foliaceous inflorescence. Morris Lake, Sparta, New Jersey, 1906, *Rydberg 7992*.
Rubus canadensis × plicatifolius. See under *R. plicatifolius*.
Rubus canadensis × procumbens. See under *R. procumbens*.
Rubus canadensis × nigricans. See under *R. nigricans*.
Rubus canadensis × hispidus. See under *R. hispidus*.

90. **Rubus elegantulus** Blanchard, Rhodora **8**: 95. 1906.

Stems biennial, erect, 1–1.5 m. high, glabrous, red, angled and furrowed, rather slender, armed on the angles with slender, slightly retrorse prickles; leaves of the turions 5-foliolate; stipules subulate, 1–1.5 cm. long; petioles, petiolules, and midveins armed with slender, retrorse prickles, glabrous; leaflets dark-green above, slightly lighter beneath, glabrous or nearly so on both sides, oval or ovate, long-acuminate at the apex, 5–10 cm. long, finely and sharply double-serrate, with ovate-lanceolate teeth; terminal leaflet usually rounded at the base and with a petiolule about 2 cm. long, the others usually acute at the base, the lateral ones with petiolules about half as long and the outermost subsessile; branches of the floral stems 1–3 dm. long, sparingly pubescent and somewhat prickly; leaves 3-foliolate or some of the upper 1-foliolate; leaflets 2–7 cm. long, more oval or obovate, and more coarsely toothed than those of the turions, the median one with a petiolule 1 cm. long or less, the lateral ones sessile, all acute at the base; inflorescence corymbose or short-racemose; peduncles and pedicels sparingly villous, often with a few prickles; sepals ovate, acuminate, 5–6 mm. long, puberulent without, tomentose within; petals white, oval, 10–12 mm. long; fruit hemispheric, or somewhat elongate, 8–10 mm. long, black, sweet; drupelets rather large, glabrous.

TYPE LOCALITY: Signal Hill and its northern borders in Alstead, New Hampshire.
DISTRIBUTION: Maine to Vermont.

Rubus elegantulus × nigrobaccus. *Rubus flavinanus* Blanchard, Am. Bot. **10**: 69. 1906. The habit of this plant indicates a hybrid of *R. elegantulus* and *R. nigrobaccus*, resembling most the former, but with larger flowers and conspicuously glandular inflorescence. Stratton, Vermont.

91. **Rubus Randii** (L. H. Bailey) Rydb. in Britton, Man. 497. 1901.

Rubus villosus Randii L. H. Bailey; Rand & Redfield, Fl. Mt. Desert 94. 1894.
Rubus argutus Randii L. H. Bailey, Evol. Nat. Fr. 385. 1898.

Stems biennial, 3–7 dm. high, glabrous, somewhat angled, armed with weak straight prickles, often ascending or arching; leaves of the turions 5-foliolate; stipules subulate, 1–1.5 cm. long; petioles glabrous or rarely with a few minute prickles, 3–6 cm. long; leaflets lanceolate or ovate-lanceolate, long-acuminate at the apex, acute or rounded at the base, 4–10 cm. long, thin and glabrous on both sides, sharply and somewhat doubly serrate, with lanceolate teeth; floral branches 1–2 dm. long, glabrous; leaves 3-foliolate; leaflets elliptic or lance-elliptic, acute at both ends, 4–7 cm. long; inflorescence rather few-flowered, corymbose or short-racemose; peduncles and pedicels minutely puberulent; sepals ovate-lanceolate, acuminate, 6–7 mm. long, puberulent without, tomentose within; petals elliptic, white, about 1 cm. long; fruit hemispheric, about 8 mm. in diameter, rather dry and seedy, black; drupelets few, glabrous.

TYPE LOCALITY: Woods, Southwest Valley Road, Mt. Desert Island, Maine.
DISTRIBUTION: Woods, from Nova Scotia to Massachusetts and New York.
ILLUSTRATIONS: L. H. Bailey, Evol. Nat. Fr. *f. 82;* Cycl. Am. Hort. *f. 2209*.

Rubus nigrobaccus × Randii. See under *R. nigrobaccus*.
Rubus canadensis × Randii. See under *R. canadensis*.
Rubus nigricans × Randii. See under *R. nigricans*.

XIX. **Procumbentes.** Low trailing species with biennial prickly stems and membranous deciduous digitately 3–5-foliolate leaves; leaflets coarsely serrate, with 5–10 lateral veins; stipules subulate; inflorescence corymbose or cymose, mostly few-flowered; achenes not separating from the fleshy receptacle. "Dewberries."

92. **Rubus cymosus** Rydberg, sp. nov.

Stem probably biennial, decumbent, terete, brownish, villous when young, soon glabrate, armed with scattered, flattened and recurved prickles 2–3 mm. long; leaves of the main stems usually 5-foliolate; stipules setaceous; petioles 6–8 cm. long, as well as the petiolules and the midveins villous and armed with short, recurved, flattened prickles; leaflets 5–8 cm. long, ovate, short-acuminate at the apex, rounded or acute, or the terminal one subcordate, at the base, pilose when young on both sides, soon glabrate above, sharply serrate; petiolule of the terminal leaflet about 3 cm. long, those of the lateral leaflets shorter and those of the outermost ones obsolete; floral branches 1–2 dm. long; leaves mostly 3-foliolate; leaflets similar but smaller and less acuminate; inflorescence more or less leafy, cymose; pedicels tomentose; sepals ovate, tomentose on both sides, acute or apiculate, 6–7 mm. long; petals white, 7–8 mm. long, spatulate or obovate; fruit dark-purple, globose, about 1 cm. long; drupelets about 20, large and pulpy, sparingly pilose at least when young.

Type collected near Tlalpam, valley of Mexico, July 18, 1901, *Rose & Hay 5540* (U. S. Nat. Herb.).

93. **Rubus oligospermus** Thornber, sp. nov.

Rubus trivialis (A. Gray, Mem. Am. Acad. 5: 301; hypnonym. 1854) S. Wats. Proc. Am. Acad. **17**: 353. 1882. Not *R. trivialis* Michx. 1803.
Rubus humifusus Hemsl. Biol. Centr. Am. Bot. **1**: 371, in part. 1880.

Stem biennial, trailing, terete, glabrous, 1–6 m. long, armed with short, recurved, flattened prickles, yellowish-green; leaves of the turions 5-foliolate; stipules subulate, adnate at the base, about 5 mm. long; petioles, petiolules, and midveins sparingly pubescent, armed with strongly flattened recurved short prickles; terminal leaflet ovate, irregularly dentate-serrate, acute at the apex, rounded at the base, 4–5 cm. long, thin, sparingly pilose above, more or less softly pubescent beneath, its petiolule about 2 cm. long; lateral leaflets ovate, short-petioluled, the outermost lanceolate or oblanceolate, sessile, 2–3 cm. long; floral branches 5–10 cm. long; leaves 1–5-foliolate, 1–4 cm. long, more pubescent and more sharply serrate than those of the turions; inflorescence 1–5-flowered, corymbiform, leafy-bracted, villous and armed with recurved prickles; sepals ovate, mucronate, 5–6 mm. long, villous-tomentose on both sides; petals white, broadly obovate or oval, 8–9 mm. long; fruit globose, 10–12 mm. broad; drupelets 12–25, large and juicy; putamen strongly reticulate, 3 mm. long.

Type collected near streams of the Santa Catalina Mountains, Arizona, in 1881, *C. G. Pringle* (U. S. Nat. Herb.).

DISTRIBUTION: Arizona, Sonora, San Luis Potosi, Jalisco, and Durango.

94. **Rubus rhodophyllus** Rydb.; Small, Fl. SE. U. S. 518. 1903.

Stems biennial, decumbent, terete, pubescent or in age glabrate, armed with recurved prickles, which are flattened only at the base; floral branches 1 dm. long or less, villous, unarmed or with scattered, small prickles; leaves 3-foliolate; stipules linear-lanceolate, about 5 mm. long; petioles 1–3 cm. long, villous and with a few small prickles; leaflets 1–3 cm. long, broadly obovate or ovate, finely and simply serrate, with broad triangular teeth, obtuse or rounded at the apex, acute or rounded at the base, closely villous-tomentose beneath, sparingly hairy or glabrate above; inflorescence corymbose, few-flowered; sepals ovate, mucronate, villous or tomentose without, tomentulose within; petals white, obovate, 10–12 mm. long.

TYPE LOCALITY: Point St. Martin, Mississippi.
DISTRIBUTION: Southern Mississippi and northern Florida.

95. **Rubus invisus** (L. H. Bailey) Britton, Mem. Torrey Club **4**: 115. 1893.

Rubus canadensis invisus L. H. Bailey, Am. Gard. **12**: 83. 1891.

Stems biennial, decumbent, sometimes ascending, sparingly armed with weak straight prickles, glabrous, terete; leaves of the turions pedately 5-foliolate; stipules subulate, 1–1.5 cm. long; petioles, petiolules, and midveins sparingly armed with weak, retrorse prickles, glabrous or essentially so; leaves thin, light-green, sparingly pubescent on both sides or glabrous, coarsely and rather evenly serrate, with broad triangular teeth, abruptly short-acuminate at the apex; median leaflet rounded-ovate, rounded or subcordate at the base, 6–10 cm. long, 5–8 cm. wide; petiolule 1–2.5 cm. long; lateral leaflet ovate, rounded or acute at the base, the outermost 4–6 cm. long, subsessile; floral branches 1.5–2.5 dm. long; leaves 3-foliolate or the upper 1-foliolate; petioles 2–6 cm. long, often unarmed; leaflets ovate or oval, acute, 3–6 cm. long; petiolule of the median leaflet about 1 cm. long, those of the lateral ones very short or none; flowers solitary in the upper axils and at the ends, or 2 or 3 together at the ends of the branches; peduncles or pedicels villous and more or less glandular-hispid; sepals 6–10 mm. long, villous without, tomentose within, ovate, acuminate, often with foliaceous tips; petals elliptic, 1–1.5 cm. long, white; fruit hemispheric, 15–20 mm. in diameter; drupelets large, glabrous.

TYPE LOCALITY: Ithaca, New York.
DISTRIBUTION: Connecticut to Ontario, Virginia, and North Carolina.
ILLUSTRATIONS: L. H. Bailey, Evol. Nat. Fr. *f. 75, 86;* Am. Gard. **12**: 81, *f. 1*, and 84, *f. 3;* Cycl. Am. Hort. *f. 2213, 2214.*

96. **Rubus Baileyanus** Britton, Mem. Torrey Club **5**: 185. 1894.

Rubus villosus humifusus T. & G. Fl. N. Am. **1**: 455. 1840.
Rubus invisus Britton, Mem. Torrey Club **4**: 115, in part. 1893. Not *R. canadensis invisus* L. H. Bailey. 1891.

Stems biennial, decumbent, trailing, 1–2 m. long, glabrous, sparingly armed with small recurved prickles; leaves of the turions 3-foliolate, rarely 5-foliolate; stipules subulate, 5–10 mm. long; petioles and petiolules sparingly pubescent and sparingly armed with weak prickles; petioles 3–5 cm. long; leaflets abruptly acuminate, doubly serrate, with broad, triangular, mucronate teeth, thin, more or less densely and softly pubescent on both sides; terminal leaflet broadly ovate, subcordate at the base, 5–7 cm. long, 4–6 cm. wide; lateral veins 6–10 on each side; petiolule 1–2 cm. long; lateral leaflets oblique, broadly ovate, somewhat rhombic, subsessile; floral branches 1–2 dm. long, finely but not very densely pilose; leaves 3-foliolate or the upper unifoliolate; leaflets of the former often somewhat lobed, double-toothed, with more rounded teeth, acute at the apex, acute or rounded at the base, 3–5 cm. long, the terminal one oval, with a petiolule about 1 cm. long, the lateral ones obliquely ovate, subsessile; unifoliolate leaves rounded-ovate, or cordate, sometimes 3-lobed, about as broad as long; flowers solitary in the axils of the upper leaves and 1, or sometimes 2 or 3, at the ends of the branches; peduncles villous-pilose; sepals ovate, mucronate, 5–6 mm. long, villous without, tomentose within; petals white, elliptic, 10–14 mm. long; fruit black, hemispheric, 10–15 mm. in diameter; drupelets large, glabrous.

TYPE LOCALITY: Not given, but the type was collected at West Point, New York.
DISTRIBUTION: Massachusetts and Ontario to North Carolina, Oklahoma, and Kansas.
ILLUSTRATIONS: Britt. & Brown, Ill. Fl. *f. 1905;* ed. 2. *f. 2302;* L. H. Bailey, Evol. Nat. Fr. *f. 77.*

Rubus Baileyanus × **nigrobaccus.** At first erect but soon decumbent; leaflets thin and broad as in *R. Baileyanus*, but the petioles more or less glandular; inflorescence with more flowers than in *R. Baileyanus*, but leafy-bracted as in that species. Smithtown, Long Island, New York, July 13, 1910, *E. P. Bicknell 17.* DISTRIBUTION: Southern New York; New Jersey to western Pennsylvania.

Rubus argutus × **Baileyanus.** See under *R. argutus.*

Rubus Baileyanus × **frondosus** Bickn. Bull. Torrey Club **38**: 121. 1911. Erect-recurving or more often trailing; differing from *R. Baileyanus* in the thicker leaves and more numerous flowers and from *R. frondosus* in the finer toothing of the leaves and more trailing habit. Nantucket Island, Massachusetts, to New Jersey.

Rubus Baileyanus × **canadensis.** See under *R. canadensis.*

Rubus Baileyanus × **flagellaris.** See under *R. flagellaris.*

Rubus Baileyanus × **procumbens** Bickn. Bull. Torrey Club **38**: 127. 1911. *Rubus canadensis*

roribaccus L. H. Bailey, Am. Gard. **11**: 642. 1890. *Rubus villosus roribaccus* L. H. Bailey, Evol. Nat. Fr. 373. 1898. *Rubus roribaccus* Rydb. in Britton, Man. 498. 1901. ? *Rubus immanis* Ashe, Jour. Elisha Mitchell Soc. **19**: 8. 1903. Resembling *R. Baileyanus* in leaf-form, the short leafy-bracted inflorescence, and large flowers, but more robust, more prickly and less hairy, and the petals narrower; differing from *R. procumbens* in the thinner, more hairy leaflets, and more numerous flowers, and in the pedicels often bearing a few glandular hairs. Massachusetts to Virginia and Missouri. ILLUSTRATIONS: Am. Gard. **11**: *f. 1* [frontispiece]; L. H. Bailey, Evol. Nat. Fr. *f. 71, 72, 85.*

Rubus Baileyanus × Enslenii. See under *R. Enslenii.*

Rubus Baileyanus × nigricans. See under *R. nigricans.*

Rubus Baileyanus × hispidus. *Rubus hispidus × procumbens* Bickn. Bull. Torrey Club **38**: 124, in part. 1911. Differing from *R. Baileyanus* in the thicker leaves, shining above, smaller flowers, and less foliaceous inflorescence, and from *R. hispidus* in the more acute, more hairy and not evergreen leaves, and in the stem, which is armed with more or less numerous weak prickles, rather than bristles. Aqueduct, Long Island, New York, June 5 and 10, 1905, *E. P. Bicknell 73.* DISTRIBUTION: Nantucket Island, Massachusetts, to New Jersey.

Rubus Baileyanus × carpinifolius. With the habit, inflorescence, flowers, and pubescence of *R. Baileyanus*, but the leaf-cut and long-petiolulate terminal leaflet of *R. carpinifolius.* Shady side of the bluffs of Bluff Lakes [Missouri?], May 17, 1878, *Eggert.*

97. **Rubus arenicola** Blanchard, Rhodora **8**: 151. 1906.

Stem prostrate from the beginning, terete, 1–3 m. long, glabrous, glandless, rooting at the end, armed with weak, straight, slightly retrorse prickles; leaves of the turions small, 3–5-foliolate; stipules subulate, about 1 cm. long; petioles, petiolules, and midveins somewhat pubescent and armed with weak retrorse prickles; petioles 4–6 cm. long; leaflets light yellowish-green, shining but appressed-pubescent above, densely soft-pubescent beneath, finely double-dentate, short-acuminate, rather thick and firm; terminal leaflet rounded-cordate or suborbicular, 4–6 cm. long, 3–5 cm. broad, its petiolule 1–2 cm. long; lateral leaflets ovate or broadly ovate, subsessile, 3–4 cm. long, in the 3-foliolate leaves often 2-cleft; floral branches 8–30 cm. long; leaves 1–3-foliolate; leaflets 2–5 cm. long, ovate or obovate, acute or in the 1-foliolate leaves often orbicular or broadly cordate; inflorescence corymbiform, 4–6-flowered, very pubescent and prickly, but not glandular; sepals ovate, mucronate, 4–5 mm. long, villous without, tomentose within; petals obovate, 8–9 mm. long, white; fruit globose, 12–15 mm. in diameter; drupelets 15–25, large; putamen strongly reticulate, 2.5 mm. long.

TYPE LOCALITY: Railroad bank midway between Kennebunk depot and Parsons depot, Maine.
DISTRIBUTION: Nova Scotia to Massachusetts.

? **Rubus arenicola × hispidus.** A specimen, probably hybrid between *R. arenicola* and *R. hispidus*, has been collected; this resembles *R. arenicola*, but the stem is more slender and more bristly, the leaves smaller and mostly 3-foliolate, and the fruit smaller; the inflorescence is short as in *R. arenicola.* Bridgewater, Nova Scotia, 1910, *J. Macoun 81441.*

98. **Rubus plicatifolius** Blanchard, Rhodora **8**: 149. 1906.

Rubus villosus Ait. Hort. Kew. **2**: 210. 1789. Not *R. villosus* Thunb. 1784.
Rubus procumbens Rydb. in Britton, Man. 498. 1901. Not. *R. procumbens* Muhl. 1818.

Stems biennial, prostrate, 1–2 m. long, greenish or purplish, terete, glabrous or the young parts sparingly appressed-pubescent, not glandular, armed with weak, straight, somewhat retrorse prickles; leaves of the turions 3–5-foliolate; stipules subulate, about 1 cm. long; petioles, petiolules, and veins with slender retrorse prickles, glabrous or somewhat pubescent beneath; leaflets oval or ovate, abruptly long-acuminate, finely and sharply serrate, plicate, rugose and with strong veins beneath, acute or obtuse at the base; terminal leaflet broad, 7–10 cm. long, its petiolule 1–3 cm. long; lateral leaflets subsessile or short-petioluled; floral branches 1–2 dm. long, pubescent; leaves 3-foliolate or 1-foliolate; leaflets oval, obovate, or obovate-cuneate, 3–5 cm. long, glabrate above but rather densely pubescent beneath; inflorescence a corymb or short raceme, 3–8-flowered, rather densely pubescent, glandless or with a few sessile glands; sepals 5–6 mm. long, ovate, caudate-acuminate, villous without, tomentose within; petals white, elliptic, 8–10 mm. long; fruit short-oblong, rarely globose, about 10 mm. broad, 12–15 mm. long; drupelets large, 15–30; putamen reticulate, 3 mm. long.

TYPE LOCALITY: Railroad depot at Wells Beach, Maine.
DISTRIBUTION: Open places, from Maine to Ontario and the Catskill Mountains, New York; apparently also in Wisconsin and Minnesota.
ILLUSTRATIONS: L. H. Bailey, Evol. Nat. Fr. *f. 84* (as *R. villosus* Ait.); C. K. Schneid. Handb. Laubh. 1: *f. 310 e, e*[1]; *f. 311 m* (both as *R. procumbens*).

Rubus nigrobaccus × plicatifolius. With the trailing habit, leaf-form, and inflorescence of *R. plicatifolius*, but the leaves yellowish-green, the young stems, leaves, and inflorescence loosely

villous, and the latter decidedly glandular as in *R. nigrobaccus*. York Beach Summit, Maine, June 30, *Blanchard 516, sheet 1.*

Rubus canadensis × plicatifolius. *Rubus multiformis delicatior* Blanchard, Rhodora 8: 180. 1906. Resembling *R. canadensis* very closely in the leaves, inflorescence, and almost in every respect except the decumbent stem; evidently a hybrid of *R. canadensis;* the other parent is probably *R. plicatifolius* Kennebunkport, Maine.

Rubus nigricans × plicatifolius. *Rubus multiformis* Blanchard, Rhodora 8: 179. 1906. Resembling *R. plicatifolius* in its trailing habit and form of the leaflets, but the stem and petioles more or less glandular-hispid as well as prickly, and the inflorescence more or less corymbiform and somewhat glandular-hispid; leaflets often somewhat narrower and the lateral ones with longer petiolules. Nova Scotia to Maine.

Rubus hispidus × plicatifolius. *Rubus semierectus* Blanchard, Rhodora 8: 157. 1906. With the inflorescence and small flowers of *R. hispidus*, but the leaves not persistent, and those of the turions 5-foliolate with more acute leaflets, and the stem with fewer and stronger bristles, and stouter; leaflets broader than in *R. plicatifolius* and those of the floral branches often obtuse. Kennebunk, Maine; Tannersville, New York.

99. **Rubus aboriginum** Rydberg, sp. nov.

Stems biennial, decumbent, terete, straw-colored or brownish, sparingly armed with weak, somewhat curved, short prickles, pubescent when young; leaves of the turions 3–5-foliolate; stipules linear-lanceolate, 1–2 cm. long; petioles, petiolules, and midveins pubescent and sparingly prickly; leaflets 4–10 cm. long, softly pilose on both sides, ovate or oval, coarsely dentate, acute at both ends or rounded at the base; petiolule of the terminal one 1–2 cm. long, those of the lateral ones 1–2 mm. long or obsolete; leaves of the floral branches smaller, 3-foliolate; leaflets obovate or cuneate from acute to rounded at the apex, 1–5 cm. long; inflorescence 1–4-flowered, corymbiform, often leafy-bracted; pedicels short, often less than 1 cm. long, pubescent; sepals ovate, 7–8 mm. long, abruptly short-acuminate, villous without, tomentose within; petals obovate, about 15 mm. long, white; ripe fruit unknown.

Type collected along the Cotton Belt Railroad at Big Sandy, Texas, April 7, 1862, *Reverchon 2988* (herb. Mo. Bot. Gard.).

DISTRIBUTION: Texas to Kansas.

100. **Rubus heterophyllus** Willd. Berl. Baumz. ed. 2. 413. 1811.

Rubus villosus michiganensis Card; L. H. Bailey, Evol. Nat. Fr. 374. 1898.
Rubus geophilus Blanchard, Rhodora 8: 148. 1906.

Stems biennial, 2–4 m. long, prostrate from the beginning, light-green, glabrous, glandless, armed with recurved prickles; leaves of the turions 3–5-foliolate; stipules subulate, adnate at the base, 10–15 mm. long; petioles, petiolules, and veins armed with weak recurved prickles, otherwise nearly glabrous; leaflets large, light yellowish-green, slightly appressed-pubescent on both sides, short-acuminate, very coarsely and doubly serrate, entire towards the base; terminal leaflet 7–10 cm. long, broadly ovate or rounded-ovate, the lateral ones narrower and smaller, in the 3-foliolate leaves often 2-cleft; floral branches 1–2.5 dm. long; leaves 3-foliolate, or 1-foliolate in the inflorescence; leaflets oval, coarsely and doubly serrate, acute at each end, the terminal short-petioluled, the lateral ones sessile; inflorescence 1–5-flowered, more or less leafy-bracted, slightly pubescent but not glandular; sepals broadly ovate, short-acuminate, 6–7 mm. long, puberulent without, tomentose within; petals white, elliptic, 10–14 mm. long; fruit short, oblong or globose, 16–18 mm. long, 14–16 mm. thick; drupelets 15–32, large, juicy.

TYPE LOCALITY: North America.
DISTRIBUTION: Open dry grounds, from Maine to Connecticut, New Jersey, and Michigan.
ILLUSTRATION: L. H. Bailey, Evol. Nat. Fr. *f. 76.*

Rubus heterophyllus × nigrobaccus. See under *R. nigrobaccus.*

Rubus heterophyllus × recurvans. The specimens referred to here resemble much *R. heterophyllus*, but the lower surface of the leaves and the young branches are decidedly soft-pubescent. Huntington Hill, Massachusetts, 1903, *Blanchard 256.*

101. **Rubus flagellaris** Willd. Enum. 549. 1809.

Stems biennial, prostrate, terete, light-green or purplish the first season, turning gray, glabrous, armed with weak, recurved, only slightly flattened prickles; leaves of the turions 3–5-foliolate; stipules linear-subulate, often 1 cm. long; petioles, petiolules, and midveins glabrous, more or less recurved-prickly; petioles 3–5 cm. long; leaflets dark-green, glabrate on both sides but often subviscid to touch, coarsely serrate, with triangular teeth, acute or

short-acuminate at the apex, 4–6 cm. long; median leaflet broadly ovate or suborbicular, rounded or subcordate at the base, abruptly short-acuminate at the apex, its petiolule 1–1.5 cm. long; lateral leaflets subsessile, at the base acute or rounded, in the 3-foliolate leaves usually broadly rhombic-ovate, oblique, often 2-lobed or 2-cleft; floral branches erect, 1–2 dm. high, glabrous; leaves 1–3-foliolate; 3-foliolate leaves similar to those of the turions, but smaller and the terminal leaflet with a shorter petiolule; unifoliolate leaves broadly ovate, orbicular, or rounded-cordate, sometimes 3-lobed; flowers several in terminal corymbiform cymes and on solitary peduncles in the upper axils, pedicels glabrous or slightly pubescent below the hypanthium, mostly unarmed; sepals ovate, 5–7 mm. long, abruptly acuminate, tomentulose within and on the margins; petals white, obovate or oblong, longer than the sepals; fruit insipid, watery, hemispheric or slightly elongate, about 1 cm. long; drupelets rather large, 15–30, arachnoid-pilose when young.

TYPE LOCALITY: North America.
DISTRIBUTION: Coastal plains, Long Island, New York, to Nantucket Island, Massachusetts.
ILLUSTRATION: L. H. Bailey, Evol. Nat. Fr. *f. 83.*

Rubus argutus × **flagellaris** Bickn. Bull. Torrey Club **38**: 117. 1911. Varying from erect and recurved to prostrate and trailing; differing from *R. argutus* in the suborbicular, closely dentate leaflets, shorter sepals, less angled stem, and weaker prickles, and from *R. flagellaris* in its stouter more prickly stem, usually less prostrate, and larger flowers. Nantucket Island, Massachusetts.

Rubus flagellaris × **frondosus** Bickn. Bull. Torrey Club **38**: 119. 1911. Differing from *R. frondosus* in the more rounded and less acuminate leaflets, those of the young shoots being more finely dentate, and from *R. flagellaris* in the pubescent leaves and larger flowers. It differs from the preceding hybrid in the more slender, terete stem and less strong prickles, thinner leaves and those of the floral branches more cut. Nantucket Island, Massachusetts.

Rubus Baileyanus × **flagellaris** Bickn. Bull. Torrey Club **38**: 132. 1911. Differing from *R. Bailey nus* in the less pubescent leaves with more rounded leaflets, more numerous and smaller flowers, shorter sepals, and fruit arachnoid-pubescent when young; from *R. flagellaris* in the thinner and more pubescent leaves and somewhat large flowers. Nantucket Island, Massachusetts.

Rubus flagellaris × **procumbens** Bickn. Bull. Torrey Club **38**: 129. 1911. Differing from *R. procumbens* in the thinner, dark-green, rounded leaflets of the turions, the more numerous flowers, the more herbaceous and almost unarmed stem, and strictly 3-foliolate leaves, and from *R. flagellaris* in the larger leaves, the more raceme-like (instead of corymbose) and less leafy-bracted inflorescence and longer sepals. Nantucket Island, Massachusetts.

Rubus Enslenii × **flagellaris.** See under *R. Enslenii.*

Rubus flagellaris × **nigricans.** See under *R. nigricans.*

Rubus flagellaris × **hispidus** Bickn. Bull. Torrey Club **38**: 126. 1911. With the habit of *R. flagellaris*, but the prickles weaker and more distributed over the whole surface of the stem, the stem weaker, and the leaves thinner and more incised; inflorescence and small flowers those of *R. hispidus*, but the former more leafy-bracted and the stem stouter than in that species and not densely hispid, but rather bearing weak spines. South of the town of Nantucket, Massachusetts.

102. **Rubus procumbens** Muhl. (Cat. 50, hyponym. 1813); W. Barton, Comp. Fl. Phila. **1**: 233. 1818.

Rubus trivialis Pursh, Fl. Am. Sept. 347, in part. 1814; Bigel. Fl. Bost. 122. 1814. Not *R. trivialis* Michx. 1803.
Rubus canadensis T. & G. Fl. N. Am. **1**: 455. 1840.
Rubus villosus L. H. Bailey, Evol. Nat. Fr. 371. 1898. Not *R. villosus* Thunb. 1784.
Rubus subuniflorus Rydb. in Britton, Man. 498. 1901.

Stems biennial, prostrate, 3–20 dm. long, glabrous, with scattered, rather weak, recurved prickles; leaves of the turions 3–5-foliolate; stipules linear-subulate, 1–1.5 cm. long; petioles, petiolules, and midveins more or less prickly; petioles 3–5 cm. long; leaflets rather firm, green on both sides, 4–10 cm. long, coarsely double-serrate, with triangular-ovate teeth, with scattered hairs above, pubescent on the veins beneath, abruptly acuminate at the apex, rounded or acute at the base; lateral veins 6–9 on each side, prominent beneath; terminal leaflet broadly ovate or rhombic-ovate, with petioles 1–2 cm. long, the lateral ones ovate and subsessile; floral branches 5–15 cm. long, sparingly villous; leaves ternate, the leaflets obovate or oblanceolate, 3–5 cm. long, acute at both ends, subsessile or the median one short-petioluled; flowers solitary in the upper axils or rarely 2–4 cymose at the ends of the branches; pedicels sparingly villous; sepals elliptic-ovate, acuminate, about 7 mm. long, sparingly villous without, tomentose within; petals white, elliptic-obovate, 10–15 mm. long; fruit black, hemispheric to thimble-shaped, 1–1.5 cm. long, more than 1 cm. thick; drupelets large, glabrous.

TYPE LOCALITY: Not given, probably near Philadelphia.
DISTRIBUTION: Open places, from Maine to Virginia, Missouri, and Minnesota.
ILLUSTRATIONS: Britt. & Brown, Ill. Fl. *f. 1906;* ed. 2. *f. 2303;* L. H. Bailey, Evol. Nat. Fr. *f. 74;* Cycl. Am. Hort. *f. 2211, 2212;* C. K. Schneid. Handb. Laubh. **1**: *f. 311 g.*

Rubus occidentalis × procumbens. See under *R. occidentalis*.

Rubus nigrobaccus × procumbens. *R. allegheniensis × procumbens* Bickn. Bull. Torrey Club **38**: 113. 1911. At first ascending, soon declined and trailing, hence having more the habit of *R. procumbens*, but the leaves more like *R. nigrobaccus*, being very pubescent, and the petioles, petiolules, and inflorescence more or less glandular-hispid; flowers more numerous than in the former, but less so than in the latter. Nantucket Island, Massachusetts; Long Island, New York.

Rubus argutus × procumbens Bickn. Bull. Torrey Club **38**: 116. 1911. *Rubus multispinus* Blanchard, Torreya **7**: 7. 1907. *Rubus frondosus × procumbens* Bickn. Bull. Torrey Club **38**: 121, in part. 1911. At first erect or ascending, widely branched with declining or trailing branches; stem harsh and angled, densely and strongly prickly; leaves most resembling those of *R. procumbens*, but more pubescent than in that species and less so than in *R. argutus;* inflorescence short and leafy-bracted below, strongly armed. Massachusetts and Rhode Island to New York.

Rubus frondosus × procumbens. See under *R. frondosus*.

Rubus procumbens × recurvans. Resembling *R. procumbens*, but less trailing and the leaves pubescent beneath. It also resembles *R. frondosus × procumbens*, but the leaflets of the flowering branches are more deeply incised and more acute. Southington, Connecticut, *L. Andrews 29*. DISTRIBUTION: Connecticut.

Rubus pergratus × procumbens. *Rubus recurvicaulis* Blanchard, Rhodora **8**: 153. 1906. This is apparently a hybrid, combining characters of *R. pergratus* and *R. procumbens*; the weakly armed brown or purplish stem, the tendency of blackening, and the shape of the leaves suggest the former, the recurving or prostrate and tipping stem, strong veining of the leaves and few flowers suggest the latter. Kennebunk, Maine.

Rubus canadensis × procumbens. *Rubus recurvicaulis inarmatus* Blanchard, Rhodora **8**: 155. 1906. If *R. recurvicaulis* is a hybrid of *R. pergratus*, the variety *inarmatus* is probably one of *R. canadensis;* the sparingly armed stem and the cut of the leaflets of the floral branches suggest those of *R. canadensis*. Nova Scotia and Maine.

Rubus Baileyanus × procumbens. See under *R. Baileyanus*.

Rubus flagellaris × procumbens. See under *R. flagellaris*.

Rubus Enslenii × procumbens. See under *R. Enslenii*.

Rubus nigricans × procumbens. See under *R. nigricans*.

Rubus hispidus × procumbens Bick. Bull. Torrey Club **38**: 124. 1911. Perhaps most resembling *R. procumbens* in habit, but the stem weaker, the prickles very weak, often almost bristle-like, and the leaves darker, those of the new stems mostly 3-foliolate and rarely subcordate at the base, those of the flowering branches cuneate at the base; resembling *R. hispidus* in the inflorescence, small flowers, shape of the sepals and the fruit, in the form of the leaflets of the floral branches, but the stem more sparingly armed, and the armature of weak prickles rather than bristles. Nova Scotia to Vermont and Long Island, New York.

103. **Rubus Enslenii** Tratt. Ros. Monog. **3**: 63. 1823.

Stems biennial, slender, prostrate, ascending or sometimes at first erect, glabrous, 3–15 dm. long, sparingly armed with small, retrorse prickles; leaves of the turions 3-foliolate; stipules lance-linear, 7–10 mm. long, ciliate; petioles glabrous, unarmed or with a few scattered weak prickles, 3–6 cm. long; leaflets thin, green on both sides, glabrous or slightly pubescent on the veins when young, ciliate on the margins, double-serrate, with ovate mucronate teeth, 3–6 cm. long, acute at both ends, lanceolate or rhombic-lanceolate; terminal leaflet with a petiolule 10–18 mm. long, the lateral ones subsessile or with very short petiolules; leaves of the floral branches 3-foliolate or the upper sometimes unifoliolate, similar but the leaflets smaller and broader, with broader and more obtuse teeth, sometimes obtuse at the apex and sometimes all subsessile; flowers mostly solitary at the ends of the branches; pedicels glabrous or nearly so, 3–6 cm. long; sepals ovate or lanceolate, acuminate, 5–7 mm. long, tomentulose within; petals 12–18 mm. long, elliptic-obovate, white; fruit black, hemispheric; drupelets rather few, glabrous.

TYPE LOCALITY: North America.

DISTRIBUTION: Massachusetts (southern coast) to Missouri, Texas, and Florida.

ILLUSTRATIONS: L. H. Bailey, Evol. Nat. Fr. *f. 87;* C. K. Schneid. Handb. Laubh. **1**: *f. 310 d, d*[1].

Rubus argutus × Enslenii. See under *R. argutus*.

Rubus Enslenii × frondosus. See under *R. frondosus*.

Rubus Baileyanus × Enslenii Bickn. Bull. Torrey Club **38**: 130. 1911. Stouter than *R. Enslenii*, with much broader, more irregularly dentate or lobed leaflets, and more numerous flowers; more herbaceous and less prickly than *R. Baileyanus*, with more coarsely and acutely dentate leaflets, and the pedicels wholly unarmed and often without glands. Nantucket Island, Massachusetts; Connecticut; District of Columbia.

Rubus Enslenii × flagellaris Bickn. Bull. Torrey Club **38**: 131. 1911. Differing from *R. Enslenii* in its larger size and often stronger and more numerous prickles, shorter petioles, broader, more cuneate and more abruptly short-acuminate leaflets, often subviscid to the touch, and more numerous smaller flowers; smaller and more pubescent than *R. flagellaris*, with weaker prickles, thinner and more cut leaflets, less leafy racemes, and slender-pedicelled flowers. Nantucket Island, Massachusetts.

Rubus Enslenii × procumbens Bickn. Bull. Torrey Club **38**: 128, excl. synonym. 1911. Differing from *R. Enslenii* in the leaves of the turions, which are usually 5-foliolate, with broader leaf-

lets, and in the stronger stem and stronger prickles; from *R. procumbens* in the thinner leaves, the less woody stem, and narrower and more deeply serrate leaflets on the floral branches. Nantucket Island, Massachusetts.

Rubus Enslenii × hispidus Bickn. Bull. Torrey Club **38**: 125. 1911. Resembling *R. Enslenii* in habit, but the leaves dark-green and shining above and with finer toothing, those of the floral branches with shorter and broader leaflets; inflorescence that of *R. hispidus*, but more leafy and more pubescent, not at all glandular-hispid; with the small flowers and the fruit of *R. hispidus*, but the leaves not evergreen, and the stem not densely bristly. Nantucket Island, Massachusetts; Long Island, New York.

104. **Rubus humistratus** Steud. Nom. Bot. ed. 2. **2**: 478. 1841.

Rubus humifusus Schlecht. Linnaea **13**: 270. 1839. Not *R. humifusus* Weihe & Nees. 1821.

Stem biennial, prostrate, 1–2 m. long, terete, slender, glabrous or younger parts sparingly pilose, armed with weak, straight, terete, retrorse prickles; leaves of the turions 3-foliolate; stipules subulate, 8–10 mm. long; petioles, petiolules, and midveins somewhat pubescent, armed with weak retrorse prickles; petioles 4–5 cm. long; leaflets ovate, dentate, thin, sparingly pilose above, glabrous or strigose on the veins beneath, 3–5 cm. long, acute at the apex, rounded at the base; petiolule of the median leaflet about 1 cm. long, those of the lateral leaflets almost none; floral branches 3–10 cm. long; leaves 1–3-foliolate; leaflets elliptic, 1–5 cm. long, more pubescent, the terminal one short-petioluled, the lateral ones sessile; flowers solitary; pedicel 2–5 cm. long, pubescent and more or less prickly; sepals 6–7 mm. long, ovate, mucronate, tomentose on both sides; petals white, broadly obovate, about 1 cm. long; fruit juicy, spheric; drupelets about 20; putamen strongly reticulate, 2 mm. long.

TYPE LOCALITY: In thickets and fields of Jalapa, Vera Cruz.
DISTRIBUTION: Southern Mexico.

XX. **Hispidi.** Low biennials with densely bristly stems, the bristles not being confined to the angles alone, at first erect and soon decumbent, or prostrate from the beginning; leaves digitately 3–5-foliolate; stipules subulate; leaflets serrate, with 5–15 lateral veins; inflorescence few-flowered, racemose or corymbose; drupelets rather few, large, not separating from the fleshy receptacle.

105. **Rubus nigricans** Rydb. in Britton, Man. 498. 1901.

Rubus hispidus suberectus Peck, Ann. Rep. N. Y. State Mus. **44**: 31. 1891. Not *R. suberectus* Anders. 1815.
Rubus setosus Britton, Bull. Torrey Club. **20**: 278. 1893. Not *R. setosus* Bigel. 1824.
Rubus Groutianus Blanchard, Am. Bot. **10**: 108. 1906.

Stems biennial, densely retrorsely bristly and more or less glandular-hispid, at first erect, later often decumbent or ascending, 3–5 dm. high; leaves of the turions 5-foliolate; petioles and petiolules densely bristly, the midveins less densely so; stipules linear-lanceolate to subulate, 1–1.5 cm. long; petioles 3–10 cm. long; leaflets glabrous or nearly so, dark-green and shining above, duller beneath, sharply and somewhat doubly serrate, with lanceolate teeth, oblanceolate, obovate, or the median one ovate, abruptly acuminate at the apex, acute or rounded at the base, 4–10 cm. long, the median one with a petiolule 5–15 mm. long, the outer ones usually subsessile; floral branches 1–3 dm. long; leaves mostly 3-foliolate, on vigorous branches 5-foliolate and similar to those of the turions, in the inflorescence often unifoliolate; leaflets of the 3-foliolate leaves obovate or obovate-oblanceolate, mostly acute, 4–7 cm. long, the median one short-petioluled, the lateral ones subsessile; inflorescence corymbose or short-racemose, often branched and leafy-bracted below, usually densely glandular-hispid or bristly; sepals ovate, abruptly short-acuminate, puberulent without, tomentose within; petals elliptic or oblong-spatulate, 10–12 mm. long; fruit hemispheric, at first red, but almost black when ripe, about 1 cm. broad; drupelets few, large, glabrous. (*R. Groutianus* is an almost glandless form.)

TYPE LOCALITY: Adirondack Mountains, New York.
DISTRIBUTION: Low ground, from Newfoundland to Rhode Island, Pennsylvania, and Wisconsin.
ILLUSTRATIONS: Britt. & Brown, Ill. Fl. *f. 1903* (as *R. setosus*); ed. 2. *f. 2298;* L. H. Bailey, Evol. Nat. Fr. *f. 80, 81.*

Rubus nigricans × sativus. See under *R. sativus.*
Rubus nigricans × nigrobaccus. See under *R. nigrobaccus.*

Rubus argutus × nigricans Bickn. Bull. Torrey Club **38**: 115. 1911. *Rubus adscendens* Blanchard, Rhodora **9**: 9, in part. 1907. Resembling *R. nigricans* in leaf-form, but much stronger, with angled stem and numerous weak prickles, rather than bristles, scattered over both angles and faces of the stem; leaves more or less densely pubescent beneath, approaching in that respect *R. argutus;* differing from the latter in the leaf-cut, the numerous prickles, the corymbiform inflorescence, often with a few glandular bristles, and smaller flowers. Massachusetts, Connecticut, New York, and New Jersey.

Rubus frondosus × nigricans Bickn. Bull. Torrey Club **38**: 119. 1911. *Rubus abbrevians* Blanchard, Torreya **6**: 235. 1906. With the broad leaflets of *R. frondosus*, although somewhat less hairy, and the inflorescence and bristly stem of *R. nigricans*, though the bristles are stouter and glands less frequent. Massachusetts, Vermont, and Connecticut.

Rubus nigricans × recurvans. *Rubus semisetosus* Blanchard, Rhodora **9**: 8. 1907. Probably a hybrid of *R. nigricans* with *R. recurvans*; most resembling the former, differing in the more pubescent leaves and inflorescence, the harsher stem and less numerous and stouter bristles. Vermont, Rhode Island, and Connecticut.

Rubus nigricans × pergratus. *Rubus peculiaris* Blanchard, Rhodora **8**: 174. 1906. Apparently a hybrid of *R. nigricans* and *R. pergratus*, having the short inflorescence and the bristly stem of the former, but the bristles less numerous and the glands of the inflorescence mostly sessile; the tall stem of *R. pergratus* and the inflorescence more or less villous as in that species; with leaf-form and flowers intermediate. Maine and Quebec.

Rubus amicalis × nigricans. *Rubus tardatus* Blanchard, Rhodora **8**: 214. 1906. Evidently a hybrid of *R. nigricans*, having the same general habit, armature and inflorescence, but the prickles stouter, the stem hard and stiff, and the leaflets thicker and dark-green above; these characters would suggest *R. amicalis* as the other parent. Nova Scotia and Maine.

Rubus canadensis × nigricans. *Rubus junceus* Blanchard, Rhodora **8**: 215. 1906. Apparently a hybrid between *R. canadensis* and *R. nigricans*, having the habit, inflorescence, and armature of the latter, but the bristles very few, the leaves of the floral branches having the cut of those of *R. canadensis*, and the flowers resembling those of that species. Maine and Ontario.

Rubus nigricans × Randii. Stem low, 2–4 dm. high, sparingly bristly, at first erect, later decumbent, red; leaves like those of *R. nigricans* but smaller and thinner; inflorescence short-corymbose as in that species, densely glandular-hispid; petals narrowly elliptic, 8 mm. long. Lime Kiln Falls, near Little Moose Lake, Adirondack Mountains, New York, *P. A. Rydberg 7897*.

Rubus Baileyanus × nigricans Bicknell. With the inflorescence and the bristly stem of *R. nigricans*, but the bristles fewer and the inflorescence only slightly glandular; leaflets larger and broader and decidedly pubescent beneath. Hempstead Plains, Long Island, New York, July 7, 1910, *E. P. Bicknell 15*. DISTRIBUTION: Connecticut and southern New York.

Rubus nigricans × plicatifolius. See under *R. plicatifolius*.

Rubus flagellaris × nigricans. Resembling *R. nigricans*, but the armature stronger, weak prickles rather than bristles, and the leaflets broader and shorter, some of them rounded-obovate, and of the peculiar green color of *R. flagellaris*. Little Neck, Nantucket Island, 1910, *Bicknell X*. DISTRIBUTION: Nantucket Island, Massachusetts.

Rubus nigricans × procumbens Bicknell. With the inflorescence, fruit, and bristly stem of *R. nigricans*, but the stem harsher, the bristles fewer and stronger, and the leaflets broad, shining and light-green as in *R. procumbens*. East Hempstead Bog, Long Island, New York, *Bicknell 16*. DISTRIBUTION: Vermont to Connecticut and New York.

Rubus nigricans × vermontanus. *Rubus vermontanus viridifolius* Blanchard, Am. Bot. **7**: 3. 1904. As this has the elongate inflorescence of *R. vermontanus*, but hispid as in *R. nigricans* and the habit intermediate, it may be regarded as a hybrid of the two species. New Hampshire and Vermont.

Rubus hispidus × nigricans Bickn. Bull. Torrey Club **38**: 124. 1911. *Rubus trifrons* Blanchard, Am. Bot. **11**: 11. 1906. *Rubus hispidus major* Blanchard, Rhodora **8**: 213. 1906. Very variable, sometimes approaching one parent, sometimes the other; leaves sometimes persistent, those of the turions either 5-foliolate or 3-foliolate (*R. trifrons*) or both, the inflorescence sometimes short-corymbose and with large bracts as in *R. nigricans*, sometimes more racemose and with smaller bracts approaching *R. hispidus;* leaflets usually more obovate, broader and firmer than in the former, more acute and less firm than in the latter; stem stouter and less prostrate than in *R. hispidus*. Nova Scotia to Connecticut and New York.

106. **Rubus setosus** Bigel. Fl. Bost. ed. 2. 198. 1824.

Stems biennial, at first erect, reclining or decumbent, densely bristly; leaves of the turions 3–5-foliolate; stipules linear or lance-linear, 1–2 cm. long; petioles 4–6 cm. long, densely retrorse-bristly; leaflets oblanceolate or obovate, glabrous and green on both sides, shining above, more or less persistent, serrate, with ovate teeth directed forward, abruptly acuminate at the apex, rounded at the base, 4–8 cm. long, the median one with a petiolule about 1 cm. long, the rest subsessile; leaves of the floral branches 3-foliolate; petioles only sparingly bristly; leaflets rhombic-oblanceolate, acute at the apex, cuneate at the base; inflorescence terminal, elongate, racemose; bracts oblanceolate; peduncles, pedicels, hypanthium, and calyx more or less glandular-hispid and puberulent; sepals ovate, 3 mm. long, acuminate; petals white, obovate, 5–6 mm. long; fruit hemispheric, red.

TYPE LOCALITY: A swamp near Sudbury, Massachusetts.
DISTRIBUTION: Massachusetts, Connecticut, and New York.

107. **Rubus vermontanus** Blanchard, Am. Bot. 7: 1. 1904.

Rubus nigricans Rob. & Fern. Man. 491. 1908. Not *R. nigricans* Rydb. 1901.

Stems biennial, at first erect, later decumbent, 1–2 m. long, more or less bristly with rather stiff spreading or reflexed bristles, terete or slightly angled; leaves of the turions 5-foliolate; stipules subulate, 1–1.5 cm. long; petioles and midveins glabrous, sparingly retrorsely bristly; leaflets dark-green, from oval or ovate to obovate or oblanceolate, 5–10 cm. long, thin, glabrous on both sides or slightly hairy on the veins beneath, sharply double-serrate, with lanceolate teeth, acuminate at the apex, acute or rounded at the base; petiolule of the median leaflet 1–2 cm. long, those of the other leaflets short or none; floral branches 1–2 cm. long, slightly pubescent, unarmed or with a few bristles; leaves 3-foliolate; petioles 2–4 cm. long; leaflets lighter-green, obovate, subsessile or short-petioluled, 2–6 cm. long; inflorescence a terminal elongate raceme; bracts lanceolate, 5–10 cm. long, the lower often cleft; peduncle and pedicels finely villous-puberulent, rarely if at all bristly, not glandular; sepals oblong-ovate, abruptly short-acuminate, villous-puberulent without, tomentose within; petals spatulate-obovate, 8–10 mm. long; fruit hemispheric, 1 cm. long, sour and seedy; drupelets glabrous, rather few.

TYPE LOCALITY: Southern Vermont.
DISTRIBUTION: Nova Scotia to Vermont.

Rubus nigrobaccus × vermontanus. See under *R. nigrobaccus*.
Rubus Brainerdi × vermontanus. See under *R. Brainerdi*.
Rubus nigricans × vermontanus. See under *R. uigricans*.
Rubus hispidus × vermontanus. *Rubus jacens* Blanchard, Torreya **6**: 147. 1906. *Rubus trifrons* Blanchard, Am. Bot. **11**: 11, in small part. 1906. ? *Rubus cubitans* Blanchard, Torreya **6**: 148. 1906. The first of these synonyms represents a plant apparently a hybrid between *R. hispidus* and *R. vermontanus*, with the habit and inflorescence of the former, but the leaves of the latter; stem stronger than in the former, with stronger and usually fewer bristles; leaflets of the turions usually five, but sometimes only three; such specimens have been referred to *R. trifrons*. *R. cubitans* probably belongs here also; its flowers are somewhat larger, the leaflets of the floral branches resemble more those of *R. hispidus;* those of the turions resemble those of *R. vermontanus* in form but are thicker, firmer, and dark-green and shining above. New Hampshire and Vermont.

108. **Rubus hispidus** L. Sp. Pl. 493. 1753.

Rubus obovalis Michx. Fl. Bor. Am. 1: 298. 1803.
Rubus obovatus Ell. Bot. S. C. & Ga. 1: 570. 1821. Not *R. obovatus* Pers. 1806.
Rubus sempervirens Bigel. Fl. Bost. ed. 2. 201. 1824.

Stems biennial, prostrate and trailing from the beginning, 5–15 dm. long, slender, glabrous, usually densely retrorsely bristly; leaves of the turions 3-foliolate, rarely pedately 5-foliolate, more or less persistent through the winter; stipules linear-subulate, 5–8 mm. long; petioles divergent, 2–5 cm. long, often bristly; leaflets rather firm, glabrous on both sides, dark-green and shining above, paler and duller beneath, coarsely double-serrate, with broad mucronate teeth; lateral veins 5–7 on each side; median leaflet rhombic-obovate, acute or abruptly short-acuminate, 3–6 cm. long, with a petiolule 5–10 mm. long, the lateral ones oblique, broadly ovate, with petiolules 1–2 mm. long; leaves of the upright floral branches also 3-foliolate or the upper unifoliolate; leaflets more obovate and usually rounded at the apex; inflorescence corymbiform, few-flowered, terminal, sometimes also with 1 or 2 flowers in the upper axils; peduncles and pedicels more or less tomentulose-puberulent and bristly or unarmed; sepals oval, about 4 mm. long, mucronate, tomentulose within; petals white, obovate, 8 mm. long; fruit dark-red or purple; drupelets few, 10–20, glabrous.

TYPE LOCALITY: Canada.
DISTRIBUTION: Low woods and wet meadows, from Nova Scotia to Georgia, Michigan, and Minnesota (?).
ILLUSTRATIONS: Hook. Fl. Bor. Am. *pl. 60;* Britt. & Brown, Ill. Fl. *f. 1902;* ed. 2. *f. 2305;* L. H. Bailey, Evol. Nat. Fr. *f. 73;* Card, Bush-Fruits *f. 65;* Cycl. Am. Hort. *f. 2210;* C. K. Schneid. Handb. Laubh. 1: *f. 310 h–h²; f. 311 k.*

Rubus hispidus × nigrobaccus. See under *R. nigrobaccus*.
Rubus argutus × hispidus Bicknell. Prostrate or decumbent, with very numerous prickles rather than bristles, distributed over the whole surface of the stem; leaves of the floral branches like those of *R. hispidus* but not evergreen, and pubescent beneath; those of the turions more like those of *R. argutus* but smaller and less hairy; inflorescence and fruit like those of *R. hispidus*, but the flowers larger. Hewlett, Long Island, 1910, *Bicknell.*
Rubus frondosus × hispidus. See under *R. frondosus*.
Rubus canadensis × hispidus. Resembling in habit a large *R. hispidus*, but the bristles few and strong, the leaflets thin and not evergreen, those of the turions decidedly acuminate;

inflorescence few-flowered and similar to that of *R. hispidus*, having large bracts, being finely pubescent and with a few bristles, but the petals considerably longer. Le Have River, Nova Scotia, *John Macoun 81436a*.

Rubus Baileyanus × hispidus. See under *R. Baileyanus*.
Rubus arenicola × hispidus. See under *R. arenicola*.
Rubus hispidus × plicatifolius. See under *R. plicatifolius*.
Rubus flagellaris × hispidus. See under *R. flagellaris*.
Rubus hispidus × procumbens. See under *R. procumbens*.
Rubus Enslenii × hispidus. See under *R. Enslenii*.
Rubus hispidus × nigricans. See under *R. nigricans*.
Rubus hispidus × vermontanus. See under *R. vermontanus*.

XXI. **Triviales.** Trailing perennials with more or less evergreen leaves, shining above, and either prickly or both prickly and bristly stems; flowers solitary or in few-flowered leafy-bracted clusters; pedicels with hooked prickles; drupelets many, not separating from the fleshy receptacle.

109. **Rubus lucidus** Rydberg, sp. nov.

Rubus trivialis β Hook. Comp. Bot. Mag. 1: 25. 1835.
Rubus persistans Rydb.; Small, Fl. SE. U. S. 519, in part. 1903.

Stems biennial or perennial (?), trailing, 1–2 m. long, terete, rather slender, armed with recurved, flattened prickles, usually brown or reddish; leaves of the turions mostly 5-foliolate, persistent, somewhat leathery in age; stipules subulate or lanceolate, 5–10 mm. long; petioles and petiolules armed with recurved, more flattened prickles; petioles 2–4 cm. long; leaflets lanceolate, acute, glabrous on both sides, except the midveins beneath, 4–8 cm. long, rather regularly serrate, with lanceolate sharp teeth strongly directed forward, dark-green and shining above, paler beneath; petiolule of the median leaflet 15 mm. long or less, those of the outermost pair very short or none; floral branches 1–2 dm., rarely 3 dm. long, erect, sparingly pubescent or glabrate; leaves 3-foliolate, 1.5–4 cm. long, oblanceolate, the median one short-petioluled, the lateral subsessile; flowers in terminal 2–6-flowered corymbs; peduncles and pedicels sparingly pubescent and decidedly prickly; sepals ovate or ovate-lanceolate, mucronate, tomentulose without, tomentose within; petals obovate, white, 12–15 cm. long; fruit elongate, 8–10 mm. long and about 8 mm. broad; drupelets small, rather dry, glabrous.

Type collected at Dunedin, Florida, 1900, *S. M. Tracy 6855* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: South Carolina to Mississippi and Florida.
ILLUSTRATIONS: Britt. & Brown, Ill. Fl. *f. 1904;* ed. *2. f. 2304* (both as *R. trivialis*).

Rubus cuneifolius × lucidus. See under *R. cuneifolius*.
Rubus floridus × lucidus. See under *R. floridus*.

110. **Rubus trivialis** Michx. Fl. Bor. Am. 1: 296. 1803.

Rubus hispidus Marsh. Arbust. 137. 1785. Not *R. hispidus* L. 1753.
? *Rubus nitidus* Raf. Fl. Ludov. 98. 1817.

Stems biennial, prostrate and trailing, 5–20 dm. long, slender, terete, more or less hispid and with small, slightly flattened prickles; leaves of the turions 3–5-foliolate, persistent; stipules linear-subulate, deciduous; petioles, petiolules, and sometimes midveins more or less armed with recurved prickles; petioles 2–5 cm. long; leaflets glabrous, subcoriaceous, ovate or oblanceolate, sharply serrate, with ovate cuspidate teeth directed forward, acute at the apex, rounded or obtuse at the base, 2–6 cm. long, dark-green and shining above, paler and duller beneath, the median one with a petiolule 3–15 mm. long, the lateral ones of the 5-foliolate leaves with petiolules 2–10 mm. long, the outermost short-petioluled or subsessile; leaves of the erect floral branches 3-foliolate; leaflets smaller, 1–4 cm. long, more elliptic or oval, rounded or obtuse at the apex, and with shorter and broader teeth; flowers terminal, mostly solitary; peduncles 2–5 cm. long, more or less tomentulose and prickly, elliptic or oval, 5–6 mm. long, mucronate or short-acuminate, tomentulose within; petals white, obovate, 10–15 mm. long; fruit usually oblong, 1–1.5 cm. long, black; drupelets many, large, glabrous.

TYPE LOCALITY: Carolina.
DISTRIBUTION: Dry fields, from Virginia to Florida, Texas, and Oklahoma.
ILLUSTRATIONS: Guimp. Otto & Hayne, Abb. Holz. *pl. 71;* L. H. Bailey, Evol. Nat. Fr. *f. 88;* Card, Bush-Fruits *f. 63;* Cycl. Am. Hort. *f. 2215;* C. K. Schneid. Handb. Laubh. 1: *f. 310 f, f*[1]; *f. 311 l.*

Rubus cuneifolius × trivialis. See under *R. cuneifolius*.

107. **Rubus vermontanus** Blanchard, Am. Bot. 7: 1. 1904.

Rubus nigricans Rob. & Fern. Man. 491. 1908. Not *R. nigricans* Rydb. 1901.

Stems biennial, at first erect, later decumbent, 1–2 m. long, more or less bristly with rather stiff spreading or reflexed bristles, terete or slightly angled; leaves of the turions 5-foliolate; stipules subulate, 1–1.5 cm. long; petioles and midveins glabrous, sparingly retrorsely bristly; leaflets dark-green, from oval or ovate to obovate or oblanceolate, 5–10 cm. long, thin, glabrous on both sides or slightly hairy on the veins beneath, sharply double-serrate, with lanceolate teeth, acuminate at the apex, acute or rounded at the base; petiolule of the median leaflet 1–2 cm. long, those of the other leaflets short or none; floral branches 1–2 cm. long, slightly pubescent, unarmed or with a few bristles; leaves 3-foliolate; petioles 2–4 cm. long; leaflets lighter-green, obovate, subsessile or short-petioluled, 2–6 cm. long; inflorescence a terminal elongate raceme; bracts lanceolate, 5–10 cm. long, the lower often cleft; peduncle and pedicels finely villous-puberulent, rarely if at all bristly, not glandular; sepals oblong-ovate, abruptly short-acuminate, villous-puberulent without, tomentose within; petals spatulate-obovate, 8–10 mm. long; fruit hemispheric, 1 cm. long, sour and seedy; drupelets glabrous, rather few.

TYPE LOCALITY: Southern Vermont.
DISTRIBUTION: Nova Scotia to Vermont.

Rubus nigrobaccus × vermontanus. See under *R. nigrobaccus*.
Rubus Brainerdi × vermontanus. See under *R. Brainerdi*.
Rubus nigricans × vermontanus. See under *R. uigricans*.
Rubus hispidus × vermontanus. *Rubus jacens* Blanchard, Torreya 6: 147. 1906. *Rubus trifrons* Blanchard, Am. Bot. 11: 11, in small part. 1906. ? *Rubus cubitans* Blanchard, Torreya 6: 148. 1906. The first of these synonyms represents a plant apparently a hybrid between *R. hispidus* and *R. vermontanus*, with the habit and inflorescence of the former, but the leaves of the latter; stem stronger than in the former, with stronger and usually fewer bristles; leaflets of the turions usually five, but sometimes only three; such specimens have been referred to *R. trifrons*. *R. cubitans* probably belongs here also; its flowers are somewhat larger, the leaflets of the floral branches resemble more those of *R. hispidus;* those of the turions resemble those of *R. vermontanus* in form but are thicker, firmer, and dark-green and shining above. New Hampshire and Vermont.

108. **Rubus hispidus** L. Sp. Pl. 493. 1753.

Rubus obovalis Michx. Fl. Bor. Am. 1: 298. 1803.
Rubus obovatus Ell. Bot. S. C. & Ga. 1: 570. 1821. Not *R. obovatus* Pers. 1806.
Rubus sempervirens Bigel. Fl. Bost. ed. 2. 201. 1824.

Stems biennial, prostrate and trailing from the beginning, 5–15 dm. long, slender, glabrous, usually densely retrorsely bristly; leaves of the turions 3-foliolate, rarely pedately 5-foliolate, more or less persistent through the winter; stipules linear-subulate, 5–8 mm. long; petioles divergent, 2–5 cm. long, often bristly; leaflets rather firm, glabrous on both sides, dark-green and shining above, paler and duller beneath, coarsely double-serrate, with broad mucronate teeth; lateral veins 5–7 on each side; median leaflet rhombic-obovate, acute or abruptly short-acuminate, 3–6 cm. long, with a petiolule 5–10 mm. long, the lateral ones oblique, broadly ovate, with petiolules 1–2 mm. long; leaves of the upright floral branches also 3-foliolate or the upper unifoliolate; leaflets more obovate and usually rounded at the apex; inflorescence corymbiform, few-flowered, terminal, sometimes also with 1 or 2 flowers in the upper axils; peduncles and pedicels more or less tomentulose-puberulent and bristly or unarmed; sepals oval, about 4 mm. long, mucronate, tomentulose within; petals white, obovate, 8 mm. long; fruit dark-red or purple; drupelets few, 10–20, glabrous.

TYPE LOCALITY: Canada.
DISTRIBUTION: Low woods and wet meadows, from Nova Scotia to Georgia, Michigan, and Minnesota (?).
ILLUSTRATIONS: Hook. Fl. Bor. Am. *pl. 60;* Britt. & Brown, Ill. Fl. *f. 1902;* ed. 2. *f. 2305;* L. H. Bailey, Evol. Nat. Fr. *f. 73;* Card, Bush-Fruits *f. 65;* Cycl. Am. Hort. *f. 2210;* C. K. Schneid. Handb. Laubh. 1: *f. 310 h–h²; f. 311 k.*

Rubus hispidus × nigrobaccus. See under *R. nigrobaccus*.
Rubus argutus × hispidus Bicknell. Prostrate or decumbent, with very numerous prickles rather than bristles, distributed over the whole surface of the stem; leaves of the floral branches like those of *R. hispidus* but not evergreen, and pubescent beneath; those of the turions more like those of *R. argutus* but smaller and less hairy; inflorescence and fruit like those of *R. hispidus*, but the flowers larger. Hewlett, Long Island, 1910, *Bicknell.*
Rubus frondosus × hispidus. See under *R. frondosus*.
Rubus canadensis × hispidus. Resembling in habit a large *R. hispidus*, but the bristles few and strong, the leaflets thin and not evergreen, those of the turions decidedly acuminate;

inflorescence few-flowered and similar to that of *R. hispidus*, having large bracts, being finely pubescent and with a few bristles, but the petals considerably longer. Le Have River, Nova Scotia, *John Macoun 81436a*.

Rubus Baileyanus × hispidus. See under *R. Baileyanus*.
Rubus arenicola × hispidus. See under *R. arenicola*.
Rubus hispidus × plicatifolius. See under *R. plicatifolius*.
Rubus flagellaris × hispidus. See under *R. flagellaris*.
Rubus hispidus × procumbens. See under *R. procumbens*.
Rubus Enslenii × hispidus. See under *R. Enslenii*.
Rubus hispidus × nigricans. See under *R. nigricans*.
Rubus hispidus × vermontanus. See under *R. vermontanus*.

XXI. **Triviales.** Trailing perennials with more or less evergreen leaves, shining above, and either prickly or both prickly and bristly stems; flowers solitary or in few-flowered leafy-bracted clusters; pedicels with hooked prickles; drupelets many, not separating from the fleshy receptacle.

109. **Rubus lucidus** Rydberg, sp. nov.

Rubus trivialis β Hook. Comp. Bot. Mag. 1: 25. 1835.
Rubus persistans Rydb.; Small, Fl. SE. U. S. 519, in part. 1903.

Stems biennial or perennial (?), trailing, 1–2 m. long, terete, rather slender, armed with recurved, flattened prickles, usually brown or reddish; leaves of the turions mostly 5-foliolate, persistent, somewhat leathery in age; stipules subulate or lanceolate, 5–10 mm. long; petioles and petiolules armed with recurved, more flattened prickles; petioles 2–4 cm. long; leaflets lanceolate, acute, glabrous on both sides, except the midveins beneath, 4–8 cm. long, rather regularly serrate, with lanceolate sharp teeth strongly directed forward, dark-green and shining above, paler beneath; petiolule of the median leaflet 15 mm. long or less, those of the outermost pair very short or none; floral branches 1–2 dm., rarely 3 dm. long, erect, sparingly pubescent or glabrate; leaves 3-foliolate, 1.5–4 cm. long, oblanceolate, the median one short-petioluled, the lateral subsessile; flowers in terminal 2–6-flowered corymbs; peduncles and pedicels sparingly pubescent and decidedly prickly; sepals ovate or ovate-lanceolate, mucronate, tomentulose without, tomentose within; petals obovate, white, 12–15 cm. long; fruit elongate, 8–10 mm. long and about 8 mm. broad; drupelets small, rather dry, glabrous.

Type collected at Dunedin, Florida, 1900, *S. M. Tracy 6855* (herb. N. Y. Bot. Gard.).
DISTRIBUTION: South Carolina to Mississippi and Florida.
ILLUSTRATIONS: Britt. & Brown, Ill. Fl. *f. 1904;* ed. 2. *f. 2304* (both as *R. trivialis*).

Rubus cuneifolius × lucidus. See under *R. cuneifolius*.
Rubus floridus × lucidus. See under *R. floridus*.

110. **Rubus trivialis** Michx. Fl. Bor. Am. 1: 296. 1803.

Rubus hispidus Marsh. Arbust. 137. 1785. Not *R. hispidus* L. 1753.
? *Rubus nitidus* Raf. Fl. Ludov. 98. 1817.

Stems biennial, prostrate and trailing, 5–20 dm. long, slender, terete, more or less hispid and with small, slightly flattened prickles; leaves of the turions 3–5-foliolate, persistent; stipules linear-subulate, deciduous; petioles, petiolules, and sometimes midveins more or less armed with recurved prickles; petioles 2–5 cm. long; leaflets glabrous, subcoriaceous, ovate or oblanceolate, sharply serrate, with ovate cuspidate teeth directed forward, acute at the apex, rounded or obtuse at the base, 2–6 cm. long, dark-green and shining above, paler and duller beneath, the median one with a petiolule 3–15 mm. long, the lateral ones of the 5-foliolate leaves with petiolules 2–10 mm. long, the outermost short-petioluled or subsessile; leaves of the erect floral branches 3-foliolate; leaflets smaller, 1–4 cm. long, more elliptic or oval, rounded or obtuse at the apex, and with shorter and broader teeth; flowers terminal, mostly solitary; peduncles 2–5 cm. long, more or less tomentulose and prickly, elliptic or oval, 5–6 mm. long, mucronate or short-acuminate, tomentulose within; petals white, obovate, 10–15 mm. long; fruit usually oblong, 1–1.5 cm. long, black; drupelets many, large, glabrous.

TYPE LOCALITY: Carolina.
DISTRIBUTION: Dry fields, from Virginia to Florida, Texas, and Oklahoma.
ILLUSTRATIONS: Guimp. Otto & Hayne, Abb. Holz. *pl. 71;* L. H. Bailey, Evol. Nat. Fr. *f. 88;* Card, Bush-Fruits *f. 63;* Cycl. Am. Hort. *f. 2215;* C. K. Schneid. Handb. Laubh. 1: *f. 310 f, f*[1]*; f. 311 l.*

Rubus cuneifolius × trivialis. See under *R. cuneifolius*.

111. **Rubus carpinifolius** Rydb.; Small, Fl. SE. U. S. 519. 1903.

Stem biennial or perennial, trailing or procumbent, terete, slender, 1–2 m. long, armed with small recurved prickles, and more or less densely bristly; leaves of the trailing stems 5-foliolate; stipules subulate, about 1 cm. long; petioles, petiolules, and midveins armed with small recurved flat prickles; petioles 4–6 cm. long; leaflets thin, glabrous on both sides, doubly serrate, with ovate, rather blunt teeth, 2–6 cm. long, acute or obtuse at both ends, elliptic or elliptic-obovate, the terminal one with a petiolule 5–20 mm. long, the rest short-petioluled or subsessile; floral branches erect, 1–3 dm. high, armed with reflexed prickles; lower leaves 5-foliolate and similar to those of the stem, the upper ones 3-foliolate; terminal leaflet elliptic to broadly oval, 4–6 cm. long, its petiolule 1–2 cm. long; lateral leaflets ovate or obovate, short-petioluled; flowers 1–4 at the ends of the branches; pedicels 3–7 cm. long, slender, armed with weak recurved flat prickles, and slightly glandular-hispid; sepals about 8 mm. long, ovate-lanceolate, puberulent without, tomentose within; petals oval, white, about 1 cm. long; fruit usually somewhat elongate, 1–2 cm. long, 10–12 mm. thick; drupelets numerous, small, glabrous.

TYPE LOCALITY: [Vicinity of Alexandria], Louisiana.
DISTRIBUTION: Louisiana and Arkansas to southern Illinois, Oklahoma, and Texas.

Rubus argutus × carpinifolius. See under *R. argutus*.
Rubus carpinifolius × floridus. See under *R. floridus*.
Rubus Baileyanus × carpinifolius. See under *R. Baileyanus*.

112. **Rubus rubrisetus** Rydb. in Britton, Man. 497. 1901.

Stems biennial, trailing, 2–4 m. long, weakly prickly and densely glandular-hispid with red or purplish bristles; leaves of the turions 5-foliolate, thick and evergreen; petioles, petiolules, and midveins hispid and with a few prickles; petioles 4–5 cm. long; leaflets all petioluled, oval, obovate, or lance-ovate, glabrous, except the veins beneath, dark-green and shining above, duller beneath, irregularly serrate, with ovate, acuminate teeth, 3–5 cm. long, acute or short-acuminate at the apex, acute at the base; petiolules of the inner three leaflets about 1 cm. long, those of the outer leaflets half as long or shorter; floral branches 1–1.5 dm. long, hispid; leaves 3–5-foliolate; leaflets 2–3 cm. long, more obtuse and with shorter petiolules; flowers 3–7, in small terminal corymbs, usually somewhat leafy-bracted below; peduncles and pedicels glandular-bristly and sometimes with small prickles; sepals ovate, short-acuminate, with subulate tips, tomentulose on both sides; petals white, oval, about 1 cm. long.

TYPE LOCALITY: New Orleans, Louisiana.
DISTRIBUTION: Mississippi Valley, from Missouri to Louisiana.

DOUBTFUL AND EXCLUDED SPECIES

Rubus inermis Willd. Enum. 548. 1809. This is, according to Bailey, a form of *R. ulmifolius* of Greece, and not an American plant.

Rubus angulatus Raf. Fl. Ludov. 98. 1817. This was described (from notes from Robin's travels) as having angled stems and broadly ovate, glabrous leaflets, which does not apply to any species known in the region.

Rubus durus Grisebachii Focke, Abh. Nat. Ver. Bremen **11**: 411. 1890. (*R. ferrugineus* Griseb. Cat. Pl. Cub. 85. 1866. Not *R. ferrugineus* Wikstr. 1828.) Described as being like *R. durus*, but the leaves tomentose beneath. It may be a distinct species, but no specimens have been seen.

Rubus crux Ashe, Jour. Elisha Mitchell Soc. **19**: 8. 1903. This seems to be a mixture, judging from the description, of *R. argutus* and *R. floridus*, or perhaps some hybrid.

Rubus Boyntoni Ashe, Jour. Elisha Mitchell Soc. **19**: 9. 1903. From the description this is probably a hybrid of *R. trivialis* with some species of the *R. argutus* group, but no specimens have been seen agreeing with the description.

Rubus madrensis M. E. Jones, Contr. W. Bot. **12**: 14. 1908. This is, from the description, related to *R. leucodermis*, but has red fruit. No plant from Chihuahua answering the description has been seen.

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